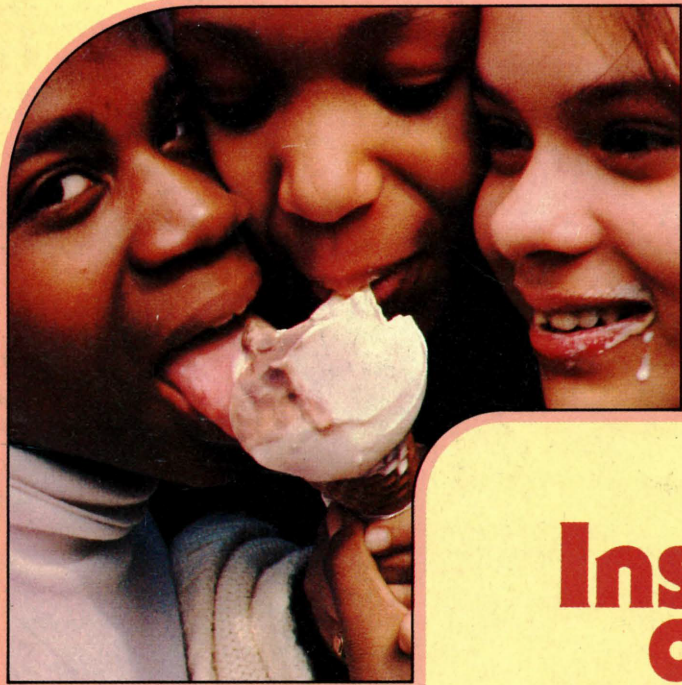


321 CONTACT™



Inside an Ice Cream Factory!



Help!



Turtles have lived on the earth for millions of years. They can trace their roots back to the time of the dinosaurs. But today, sea turtles like this one are in big trouble. You can read more about their problems and what is being done to help them. Just turn to page 22.

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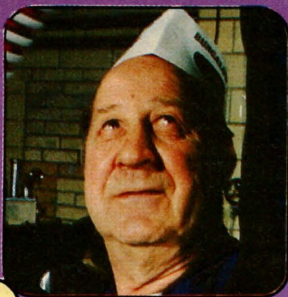
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What's the Scoop?

A VISIT TO AN ICE CREAM FACTORY

by Ellen Weiss

Have you ever thought about where ice cream comes from? You know it doesn't come from the cow like that—even if the cow is very, very cold. Like most of the food you buy, ice cream comes from factories. But what are the factories like? Are they freezing cold? Do they smell like chocolate and butter pecan? CONTACT went to the Gold Seal Ice Cream factory in Brooklyn, New York to find out.

What we found is that ice cream comes from places that are very modern. There are machines that pound, chug and clatter. They make lots of noise and lots of ice cream every day.

"Fifty years ago," explains Albert Kroll, one of the owners of the factory, "ice cream was made very differently. To make a pop, we made a big chunk of ice cream. Then we cut it into smaller squares, stuck in the sticks and wrapped each by



Right: Strawberries for the Gold Seal factory come from faraway places like Poland and Mexico.



Left: A machine fills cups with chocolate ice cream. This ice cream is a special mix that is low in sugar. The cups will be sent to hospitals.

Below: At the factory, most of the ice cream making is done by machines. Workers have other jobs—like packing cartons and stacking cups.



hand. A pop cost about three cents then." Now, human hands don't come near the ice cream from start to finish. And the three cents price is ancient history, too.

Making Ice Cream

A modern factory has its own way of making ice cream. It all starts about one o'clock in the morning. That's when a shiny tanker truck arrives at the factory. It is full of thick, rich cream. This is the most important part of the ice cream. The cream is stored in a huge tank inside the factory.

The Basic Mix

Early in the morning, one of the workers makes the ice cream mix in a blending machine. Every flavor, from plain old vanilla to tutti-frutti starts with the same basic mix. This is a sweet liquid made from cream, skim milk, sugar and water. The mix will travel long distances through gleaming steel pipes to many parts of the factory, before it

becomes ice cream.

The first stop for the mix is a machine that "cooks" it for half an hour. This is to kill any germs which might be in the mix.

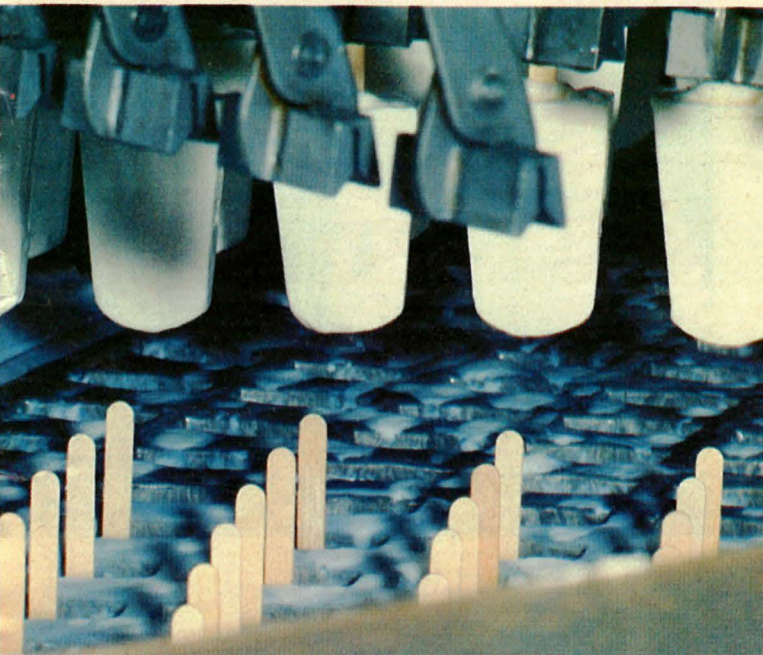
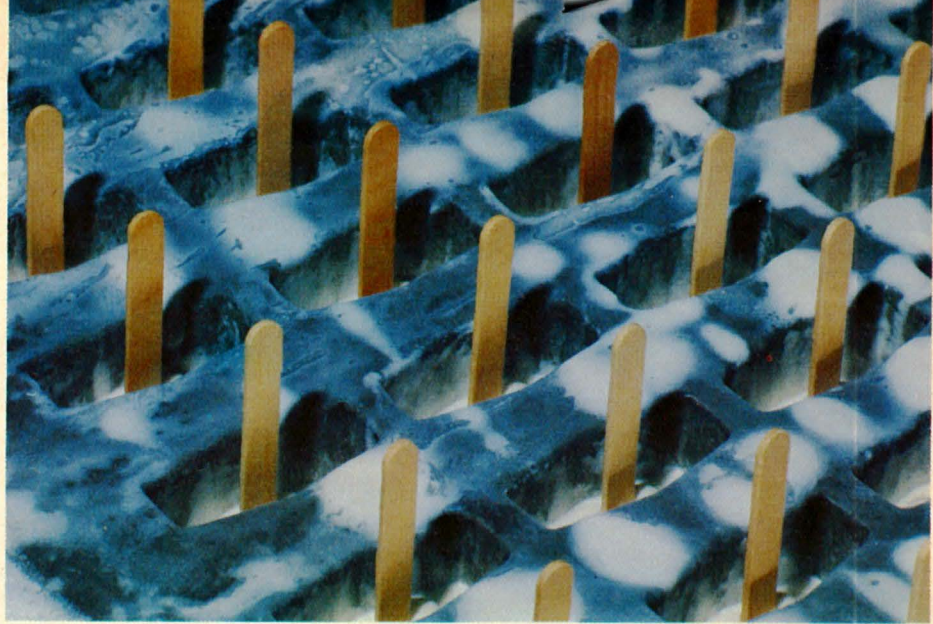
At the factory is a lab. People there test every batch of ice cream mix. "Sometimes a worker might accidentally dip an elbow into the mix," says Mr. Kroll. "The lab will find that the number of germs is too high. Then we have to send the whole batch back to be cooked again."

The next step is a machine that pushes the mix through a fine screen. The mix is under a lot of pressure. Normally, the cream would separate from the mix the way oil does from water. But the screen mixes it together so well that it stays mixed for good.

The liquid is still very hot, almost boiling. This won't do if it's ever going to be ice cream. So it's on to the cooling machine. It brings the temperature down to almost freezing. ➡

The pictures on these two pages show how ice cream pops are made.

Right: First, liquid ice cream is poured into a mold. While it is being frozen, popsicle sticks are added.



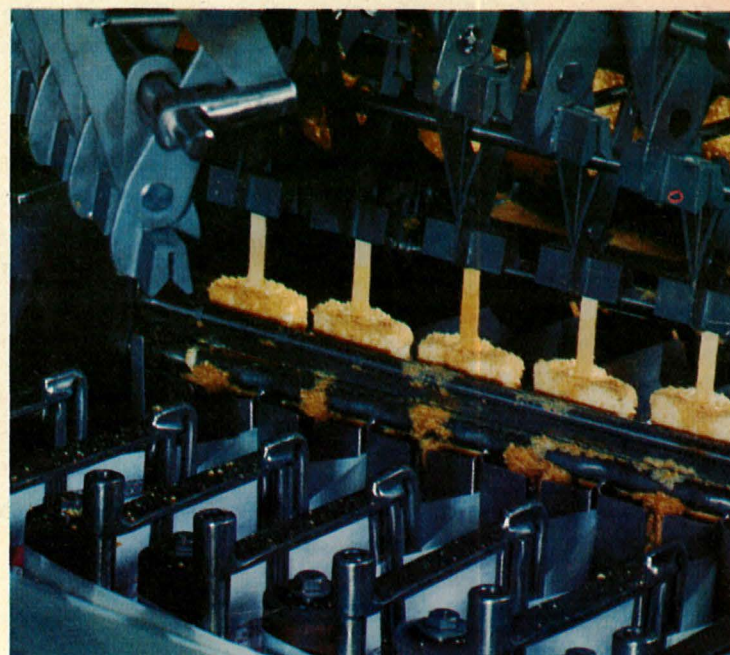
Above: A machine lifts out the pops. Next they are coated with a thin layer of vegetable oil.

Adding the Flavor

This cool, sweet mix still doesn't taste like much. That's where the Univat comes in. This machine mixes in whatever flavor you want. The Univat adds things like stawberry juice or chocolate powder to the mix. The chunky goodies, like chocolate chips or nuts will be added later.

The big freezers come next in line, after the Univat. These freezers aren't like the one you keep ice cubes in. They are large complicated machines. They turn the mix from liquid into real live ice cream. And they do it in just seconds.

As the mix freezes, other things are happening, too. Air is pumped into the ice cream. All ice



Above: The pops are now dipped into the toasted almond crunch. Bits of crunch stick to the oil.

cream has to have some air in it. If not, it would be as hard as a rock. But too much air makes poor quality ice cream. So just the right amount of air must be added.

While the ice cream is being made, the freezer also mixes in the solid ingredients. There may be pecans from Georgia, or strawberries from Mexico or Poland. "We make about 40 flavors here," says Albert Kroll proudly. "There are over 400 different items, too, like ice cream sandwiches made with less sugar especially for the schools."

Popsicles and Sandwiches

The next machines in line are really fun to watch. They are the ones that take the ice cream from the

freezer and pound it, pour it, mold it and wrap it up. This all happens very fast. The sandwich machine alone will turn out 1,600 boxes by the end of the day, at three dozen to the box. (Got your calculator? That comes to 57,600 sandwiches a day. That's enough to give one to everybody in Greenland.)

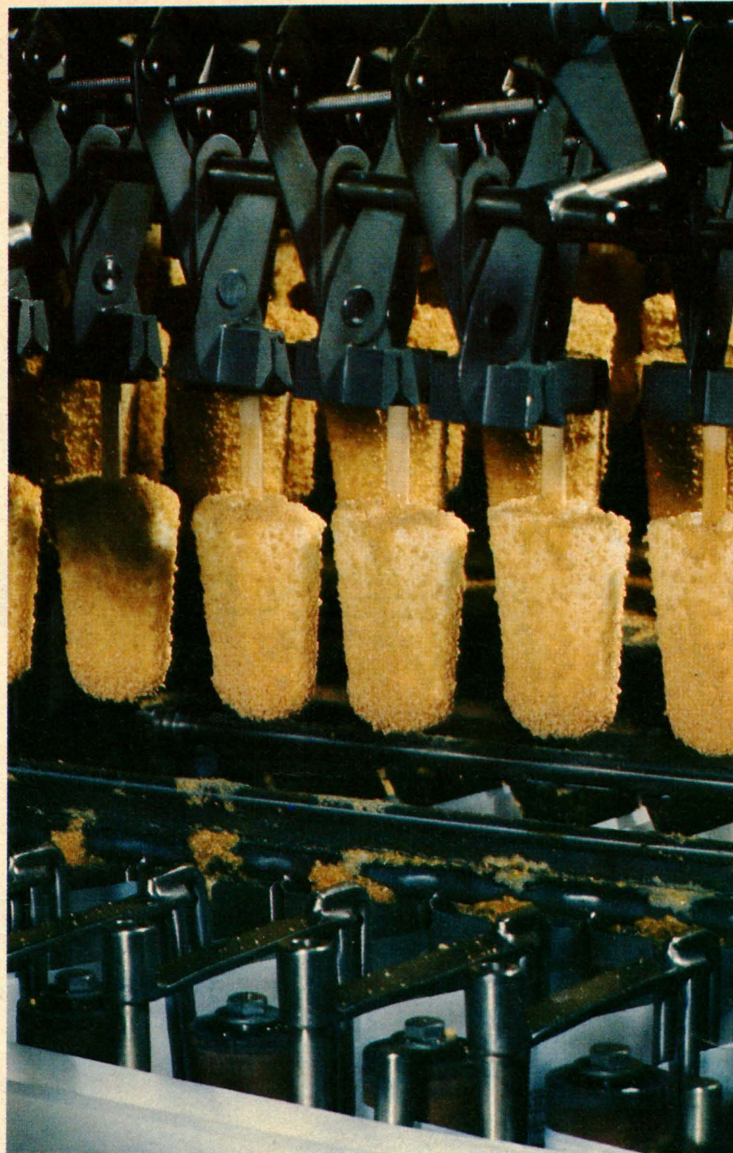
All this stamping, pounding and molding makes a lot of noise. "Sometimes you find yourself yelling when you walk out of here, just because you've been yelling all day," says Pauline, who works on the pop-making machine.

The machines also move very fast. Most of them make about 120 things (like pops or sandwiches) a minute. But they can speed up to 160 a minute on a busy day. "When the machines are going very fast, you don't have time to blow your nose," said Pauline's friend Mickey, who stuffs wrapped pops into boxes. "Heaven help you if you have a cold."

The Deep Freeze

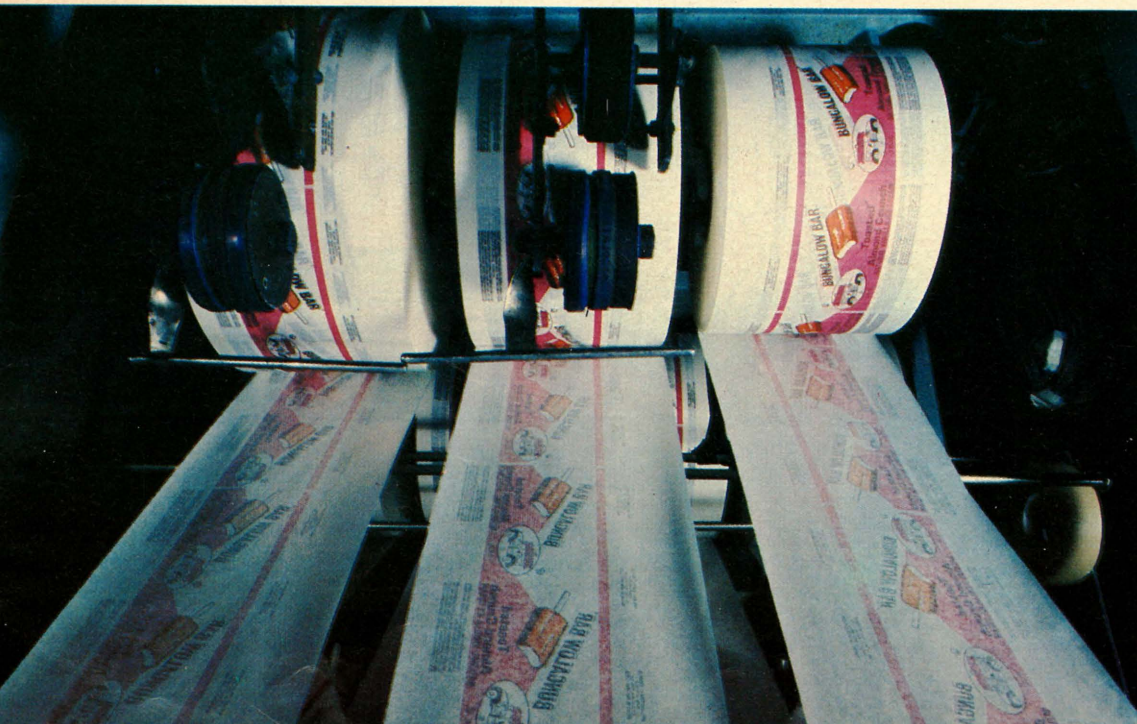
At last the finished, packaged ice cream goes into a never-never land called the hardening room. "We've never seen it," say Pauline and Mickey. "You have to be crazy to go in there." This is where the ice cream waits until it is loaded into the delivery trucks. It is 35° below zero in this room, which looks like a fairyland of icicles and frost. The people who work there wear hooded ski jackets. Every 20 minutes, they must take 10 minutes off and go warm up.

And finally, the ice cream is on its way to you. It leaves every morning in refrigerator trucks for stores, schools, camps and hospitals, and of course, to your freezer, right next to the ice cubes.



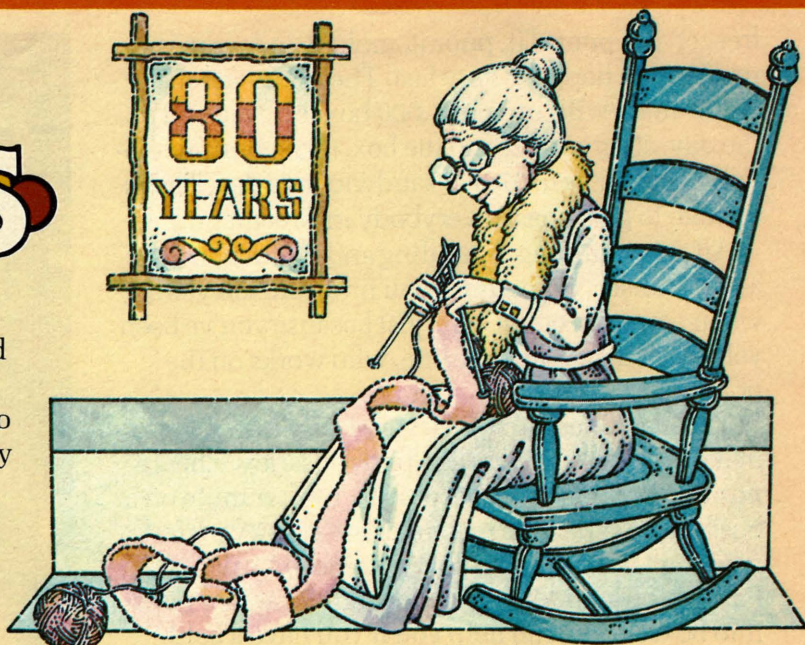
Above: Out come the ice cream pops, covered with toast-ed almonds. They are now ready for the final step.

Left: A special machine wraps the ice cream pops. They are ready to be sent to the store and to you.



Factoids

What are factoids? They are weird little facts that are stranger than strange, truer than true. Use them to wow your friends, amaze your family and dazzle your teachers.



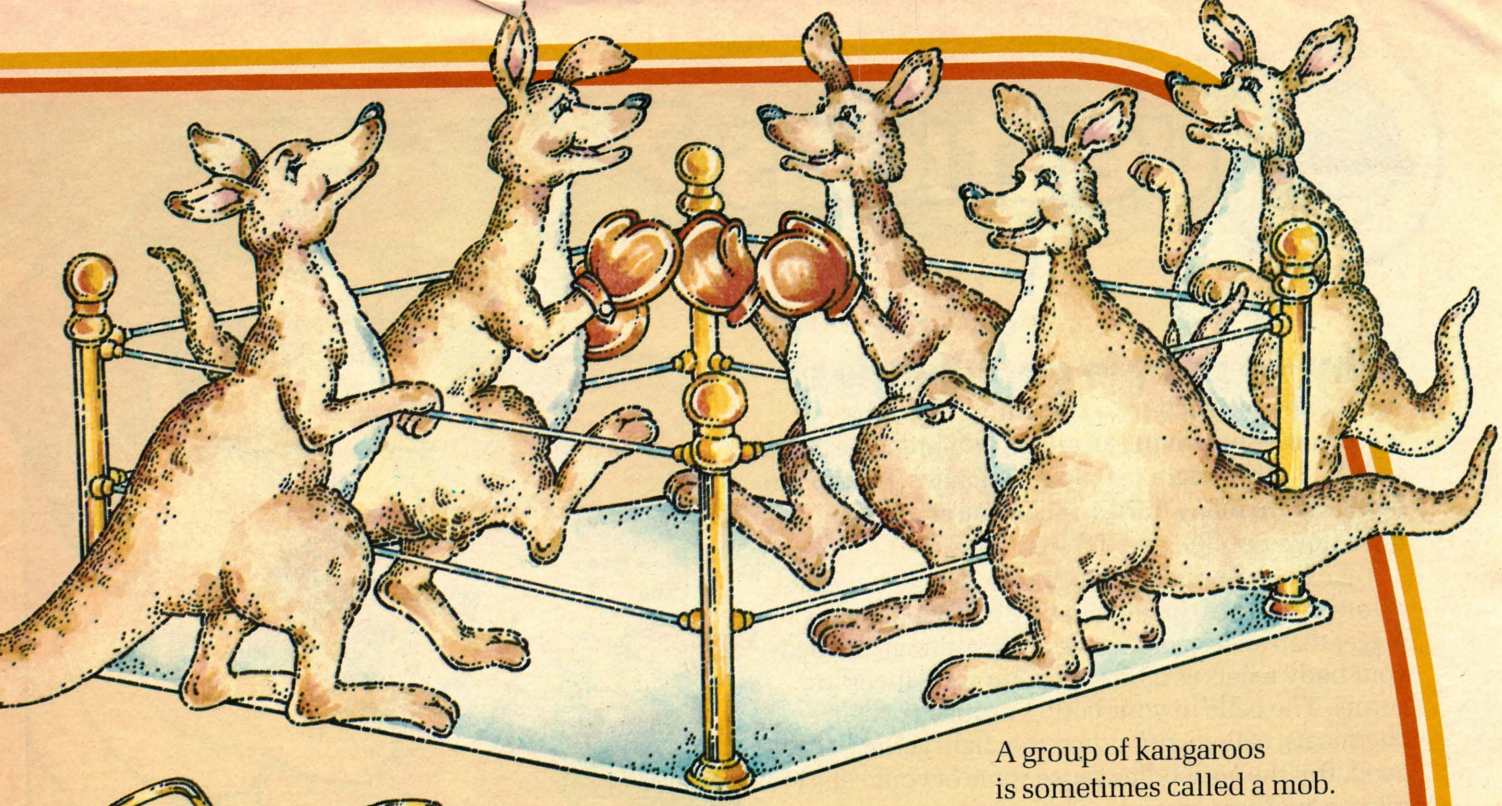
Women in North Dakota live an average of 80 years. That's the longest of any state.



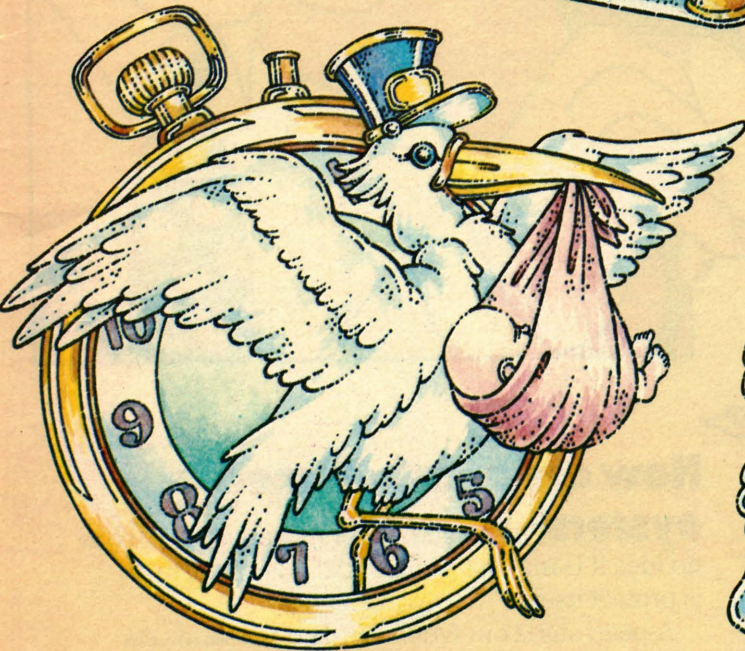
Bamboo trees grow as much as three feet in a single day.



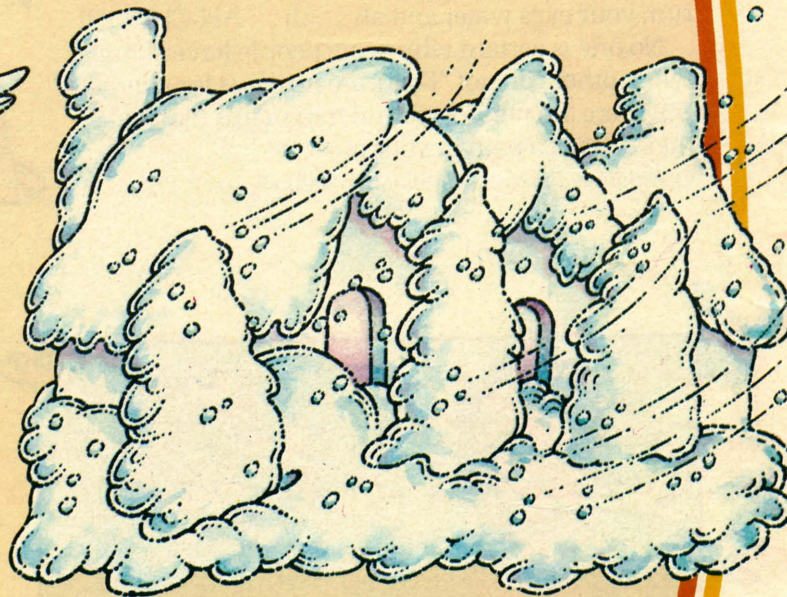
There is a town in Utah called Pickleville.



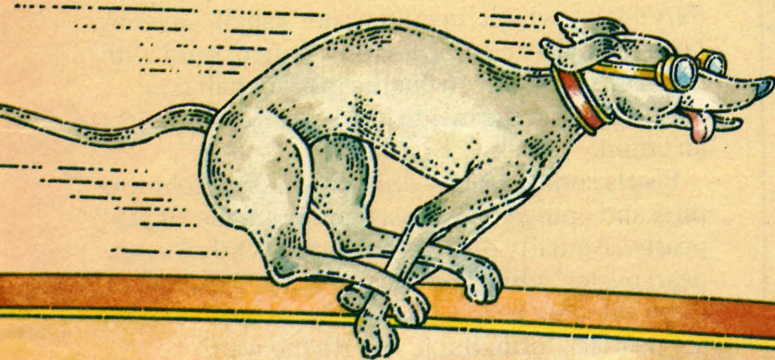
A group of kangaroos is sometimes called a mob.



Every minute 100 people die and 240 are born.



The heaviest snowfall in 24 hours was on April 14–15, 1921, in Silver Lake, Colorado. It snowed six feet, four inches deep.



The fastest breed of dog is the greyhound. It can run 41 miles an hour over short distances.



Any Questions?

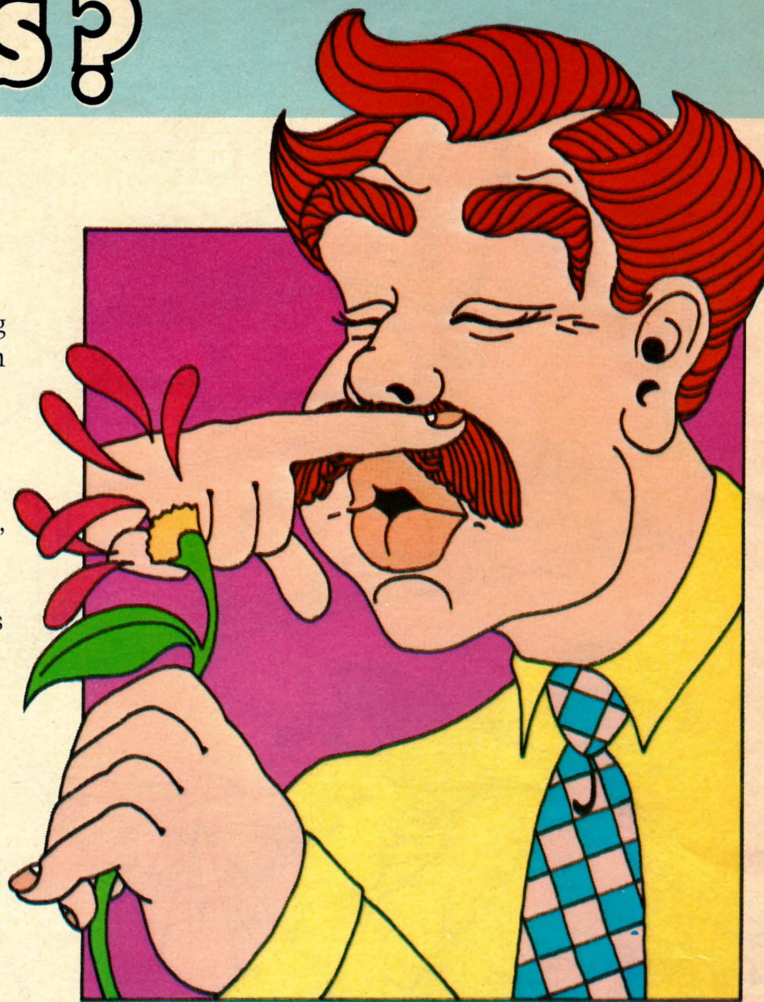
Why do people get allergies?

An allergy is a reaction to something that rubs you the wrong way. Having an allergy is a little like being sick, but only certain people get allergies. People can be allergic to many things, including animal hair, dust, flower pollen and different foods.

Take flower pollen, for example. When you smell a flower, you also breathe in tiny bits of pollen no bigger than specks of dust. If you are allergic to them, your body reacts as if bits of pollen were invading germs. The cells in your body produce special chemicals, called *antibodies*, that fight germs. That's good. But the antibodies cause some of your cells to release another chemical. This one makes your nose run, your eyes water and ah . . . ah . . . AH-CHOOO!

No one is certain why some people have allergies while others do not. There are no cures for allergies. But there are medicines and treatments that make them less of a pain in your nose.

Question sent in by Brad Williams, Hunlock Creek, PA.



How are pearls formed in oysters?

When an oyster makes a pearl, it has no idea it is making jewelry. All it is trying to do is protect itself.

A pearl starts out when a little bit of sand gets caught in the soft inside of an oyster. The oyster cannot wash away the irritating particle. So it makes a pearl.

A pearl is made from a substance, called *nacre* (NAY-kur), which lines an oyster's shell. Layer by layer the oyster covers the little grain of sand with this shiny stuff. If you cut the pearl in half you would see that the inside looks just like the layers of an onion.

Pearls come in many different colors, including pink and orange. The most famous are the "black" pearls. (Actually they are dark gray.) Only the sea pearl oyster, which lies in very warm seas, makes these valuable pearls. It takes about three years for the pearls to form. But it's worth the wait!

Question sent in by Angela Ortenzi, Stroudsburg, PA.

Do you have a question that no one seems able to answer? Why not ask us? Send your question, along with your name, address, and age, to:

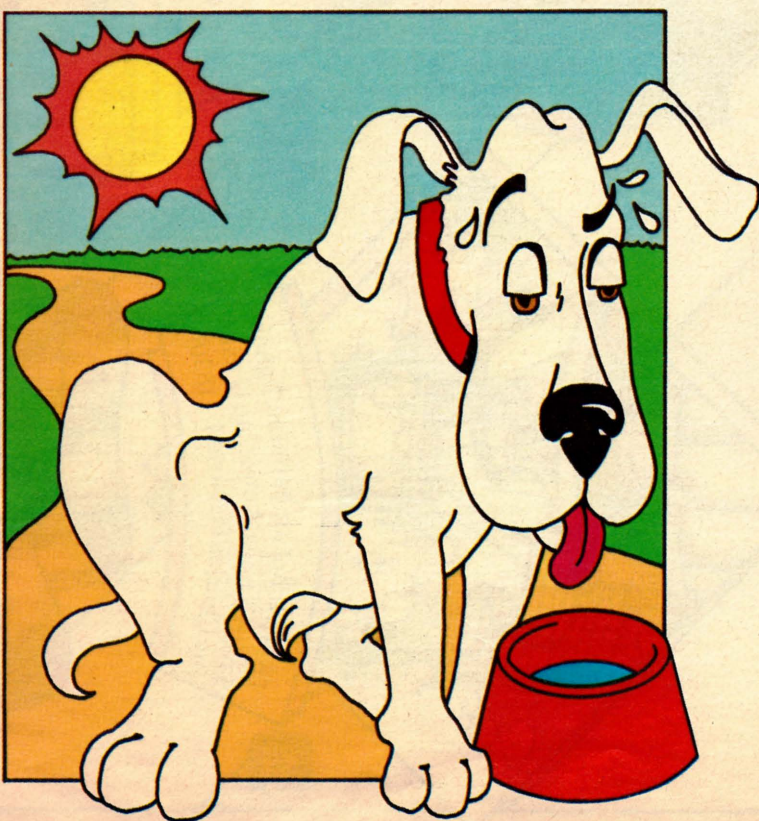
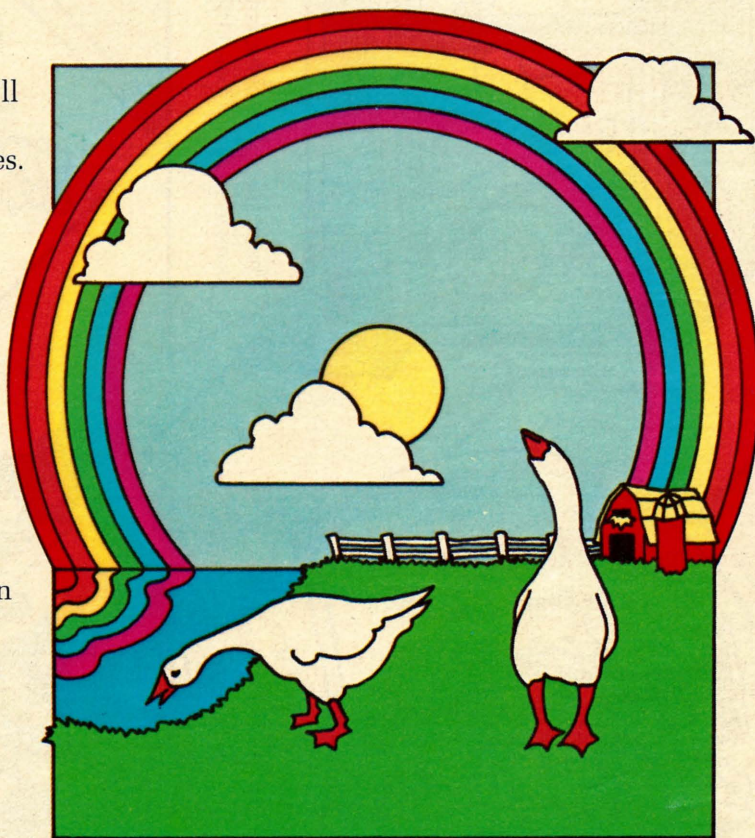
Any Questions?
3-2-1 CONTACT
P.O. Box 599
Ridgefield, NJ 07657

Why are rainbows in arcs? You'll never find the pot of gold at the end of a rainbow. That's because rainbows don't end. They are circles. The arc of color you see is just a small part of the rainbow.

For a rainbow to form, you need two things: sunshine and air loaded with water. The sunlight looks white. But white light really is made up of all colors. The water in the air bends the light and separates it into the colors. That's why you see a rainbow.

How much of the rainbow you can see depends on where the sun is in the sky. When the sun is high, most of the rainbow is below the horizon. You only see the top of it. When the sun is lower, more of the rainbow circle is visible. You may even see more than half of it. Under special conditions, people flying in planes have been lucky enough to see the whole rainbow circle.

Question sent in by Heather Wickman, Gardner, MA.



Why does water evaporate?

Water comes in three forms. There is the splashy kind you take a bath in. Then there is the frozen kind you pack into snowballs. The last kind is an invisible gas. In this form it is called water vapor (VAY-purr). When it is very humid out, a lot of this vapor is in the air all around you.

The very tiniest bits of water, ice and water vapor look the same. One thing makes them different—heat. You know that heat can turn ice into water. It can also turn water into vapor.

Suppose you leave a bowl of water outside. The air warms the surface of the water. That causes the tiniest bits of water to start moving. When a bit of water is heated enough, it gains the energy needed to break loose from the water's surface. It becomes vapor and mixes with the air.

Water will evaporate faster on a warm day than on a cool day. The hotter it is, the faster the bits of water move. You can't see the evaporation happening. But after a few hours, you will notice there is less water in the bowl than when you filled it.

Question sent in by Ellin Ramsey, Proctorville, OH.



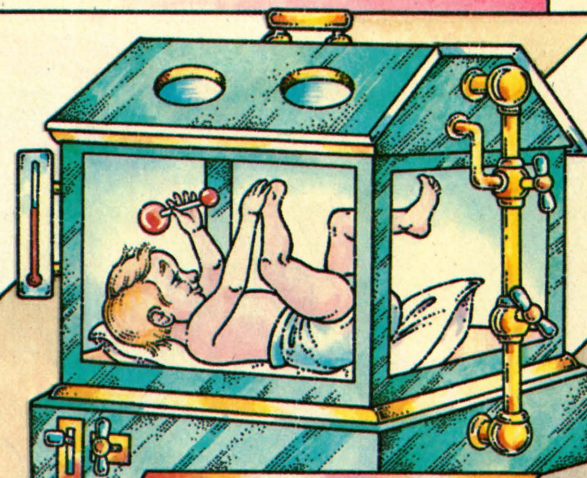
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The largest known hailstone lands in Coffeyville, Kansas. It weighs almost two pounds. (1970)



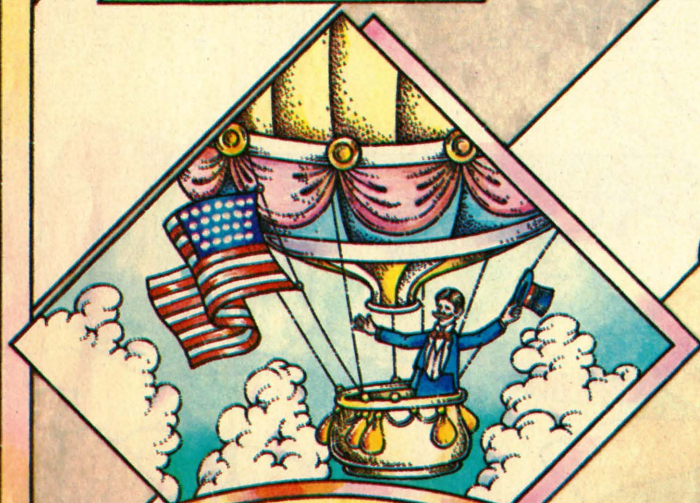
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The discovery of the North Pole is announced. (1909)



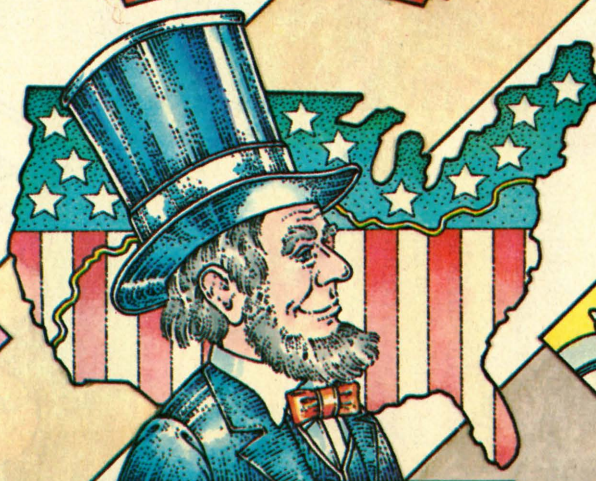
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The first incubator for babies is used in New York. (1888)



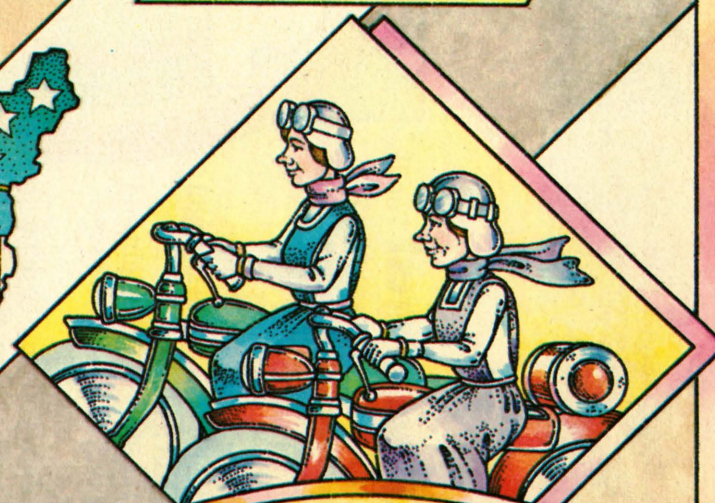
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The first hot air balloon flight by a native-born American is made by Charles F. Durant. (1830)



10

The Lincoln Highway, the first coast-to-coast paved road, is opened. (1913)



12

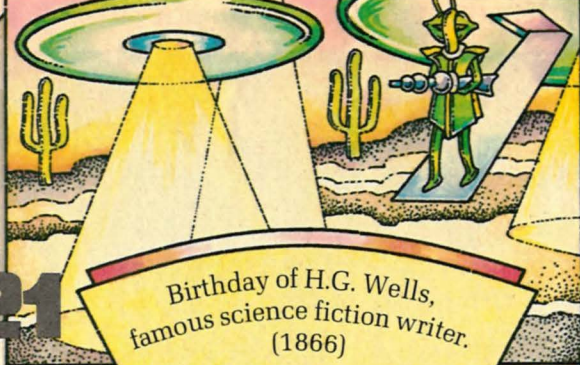
Adelina and Augusta Van Buren become the first women to motorcycle across the U.S. (1916)





14

The typewriter ribbon is patented by G.K. Anderson. (1886)



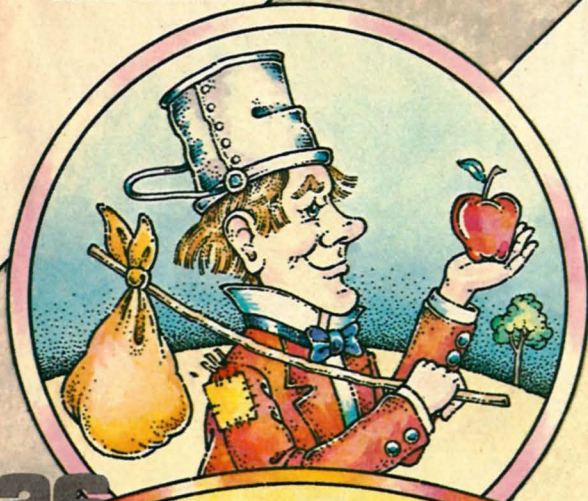
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Birthday of H.G. Wells, famous science fiction writer. (1866)



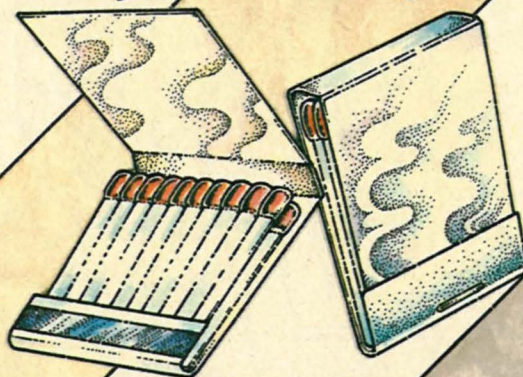
22

Today is the Autumnal Equinox, the first day of fall.



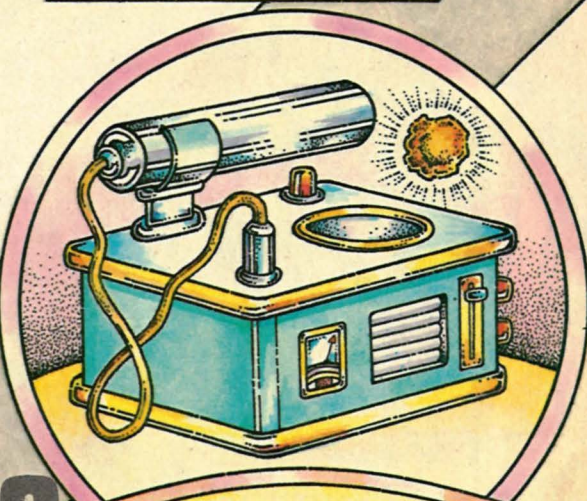
26

Birthday of Johnny Appleseed. (1774)



27

The first matchbooks are patented. (1892)



30

Birthday of Hans Geiger, inventor of the Geiger counter. (1882)

S M T W T F S

	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Earth Days


September

Footprint Maze

Can you find your way through this maze? After you finish, you can find out about what made these sneaky footprints. Just zip on over to page 30.

Answer on page 37.





Are You An Ice Cream Expert?

A CONTACT QUIZ

by Ellen Weiss

Long before there were ice cream factories, there was ice cream. Two thousand years ago, the Roman emperor Nero used to send messengers to the mountains to get ice. If they were lucky enough to get back before it melted, Nero would eat it with honey, juices and fruit. It makes sense that the dish most like it today is sometimes called Italian ice.

Seven hundred years ago, the great explorer Marco Polo returned from China. With him came a recipe for a kind of sherbet made from milk. It was said that people there had been eating it for thousands of years.

We know you like ice cream, but how much do you know about it? Take this quiz and find out.

1. George Washington loved ice cream.
True or False?
2. Frozen yogurt is better for you than ice cream.
True or False?
3. There's such a thing as mustard ice cream.
True or False?
4. Strawberry flavored ice cream is flavored only with real strawberries.
True or False?
- 5 All gallons of ice cream weigh the same.
True or False?
6. Ice cream is better for you than fruit sherbet.
True or False?
7. America's favorite ice cream flavor is chocolate.
True or False?
8. Ice cream has become so American that it is almost unknown in most parts of the world.
True or False?

Answers on the next page.

Ice Cream Quiz Answers

1

True Not only did old George buy an ice cream maker for his home, he also spent a lot of money buying the stuff from ice cream dealers. There is a record of a bill which was sent to him in 1790 by one New York ice cream seller. The bill is for \$200—just for one summer!

2

True Frozen yogurt is a little healthier to eat than ice cream. Not much, but a little. It has less butterfat, because it is usually made from skim milk. It has less sugar than ice cream. And if you are watching your weight, you would be smart to switch from ice cream to yogurt. A cup of vanilla ice cream has about 300 calories. A cup of frozen yogurt has 180.

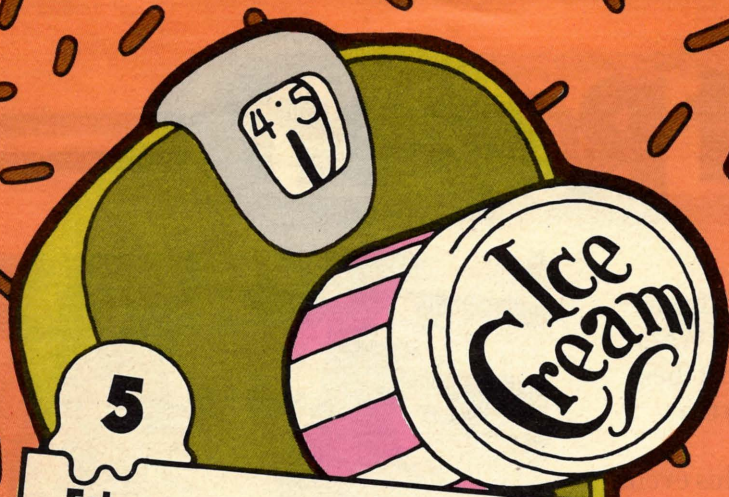
Yogurt is full of tiny bacteria called active cultures. As colonies of these tiny critters grow in milk, they turn it into yogurt. It sounds gross, but these bacteria happen to be good for you. They give yogurt its special taste and make it easier to digest. In fact, people who cannot eat other milk products often can eat yogurt.

4

False If the ice cream you buy has the word “flavored” on the box, that’s important information. In strawberry flavored ice cream, as much as half the strawberry taste may be artificial—made from chemicals. Even worse is a label that says *artificially flavored* strawberry ice cream. More than half the flavor in that ice cream comes from chemicals. Only if 100% of the flavor comes from real strawberries are ice cream producers allowed to call it strawberry ice cream. Of course, the same rule applies to chocolate, vanilla or mustard ice cream as well.

3

True No kidding! If you can think of a weird kind of ice cream, somebody has probably invented it. The ice cream people were created. And that was a long time ago. Besides mustard, there have also been pickle, potato-and-bacon and sweet potato ice cream. There is even a sauerkraut sherbet. And the flavor that the Good Humor Ice Cream Company would most like to forget is called chili con carne!



5

False Maybe you think, "A gallon is a gallon." But it's more complicated than that. A gallon is just the amount of space something takes up. But weight is a whole other story. A gallon of ice cream can be heavy or light. It all depends on how much air there is in it.

You read in the ice cream factory story that all ice cream needs to have air whipped into it. But some ice cream is half air! The government says that a gallon of ice cream should weigh at least four and a half pounds. But high quality ice cream can weigh twice as much as that.



6

True Of course neither one is the healthiest thing you can eat. But ice cream is better for you than sherbet. It has much more milk and about half as much sugar. And it's a mistake to think that sherbet is loaded with good fruit. Orange sherbet only has about 2% fruit—a tiny, tiny bit. How about eating a juicy orange instead? It's 100% fruit.



7

False In fact, very false. America's whopping favorite, year after year, is vanilla. About half of all the ice cream eaten is vanilla. That leaves half for all the rest of the flavors. Chocolate runs very far behind in second place and strawberry comes in third.

Whatever the flavor though, this country really loves ice cream. The average American eats 15 quarts of ice cream a year.



False All over the world, people are bonkers for ice cream. The average Russian living in Moscow eats more ice cream than the average American. So does the average Australian. Probably, the only continent where ice cream isn't a big deal is Antarctica. And we're not so sure about that either!

Contact Report

California Penguins

Last year three baby emperor penguins peeked out from their shells at the Sea World in San Diego, California. When they did, it was big news. It was the first time ever that these penguins were born away from their native home in the Antarctic near the South Pole.

Scientists at the Sea World had been waiting for this event. Five years ago they had brought 45 of these penguins to the Sea World. A cold room full of flaked ice was set aside for them. The birds made themselves right at home.

First, some of the females layed eggs. Then they went off to another room, just as they would go to sea in their icy homeland. So the male penguins took over. They kept the eggs warm in the area between their feet and the soft folds of their lower bellies. After they hatched, the adults took turns caring for the chicks.

Emperor penguins often spend their whole lives on the ice at sea. So now, for the first time, scientists can closely watch little emperor penguins as they grow up.

—Written by Marilou Carlin



Baby penguins feel at home in California.

Second Skin

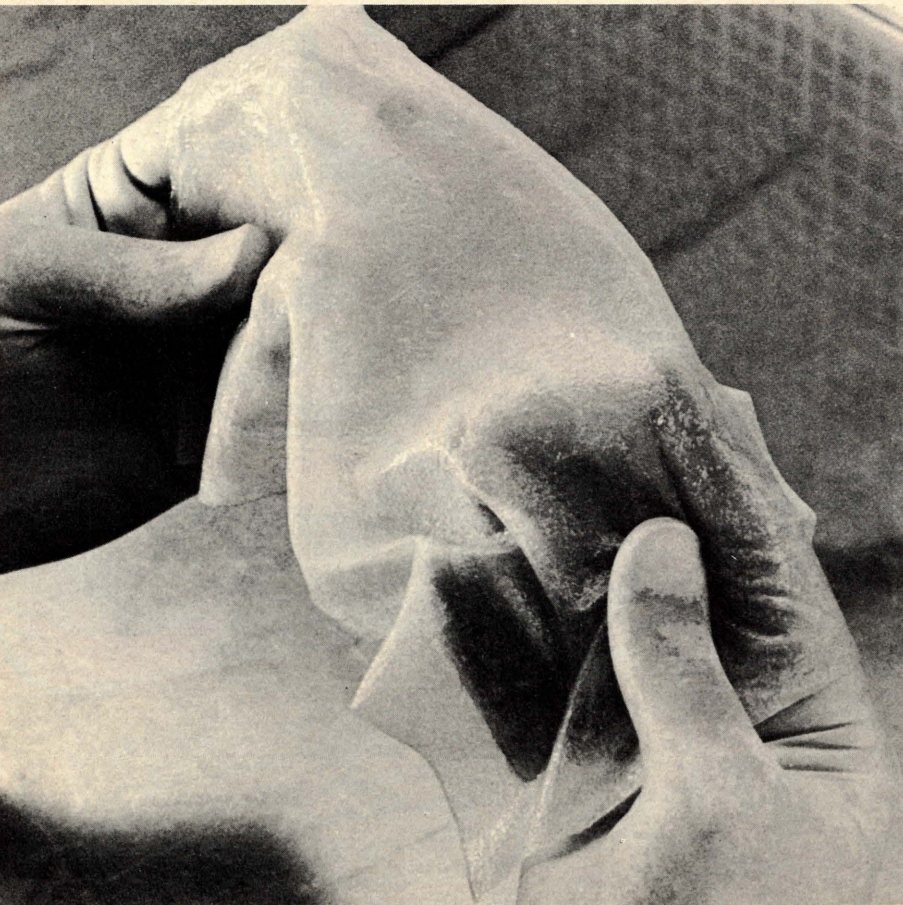
Your skin has always got you covered. It protects you against germs and infection. But what happens when a person's skin gets badly burned?

Now, thanks to two scientists, people with burns can get patched up with artificial skin. It covers their burns and keeps them safe until their own skin grows back.

This new artificial skin has two layers, just like real skin. A thin sheet of rubbery material makes up the outside layer. The inside layer is made of natural human protein.

The false skin isn't exactly pretty. And it feels like damp tissue paper. But the important thing is that it works. Doctors can lay the skin right over a burn. As the person's real skin grows underneath, the natural protein is taken in. All that's left is the rubbery top layer. And when the healing is complete, that falls off.

—Written by Douglas Colligan



Burn victims can wear fake skin until their own skin grows back.

Contact Report

Out of This World TV

You probably spend a lot of time in front of the TV set. But some people never get to watch TV. They live in faraway places like parts of Alaska. Regular TV signals can't reach their homes.

Now a company is making a gadget which could help these people. It is a TV receiver which sits right in a person's backyard. This giant antenna looks like a large shallow bowl. It is so big that it can't be put on the roof!

Connected to this antenna are electronic receivers. People can actually aim the antenna at any one of the different satellites which pick up TV signals out in space. By aiming the antenna, they can pick up signals from more than 20 TV stations.

Someday, you may be able to buy a backyard receiver, too. It would bring in more programs than you can get now. There's just one catch. Each one costs about \$10,000. So for now, you'd better stick to reruns.

—Written by Douglas Colligan



This giant TV antenna picks up 20 channels.

Old Slingshot Nose

Have you ever seen a camel with a pair of horns? How about one with two pairs of horns and a nose like a slingshot?

Scientists have just found what's left of this camel in Florida. A fossil hunter brought in some strange bones. When pieces were put together, they formed a skull. The animal's main horns were 20 inches long. And near the tip of its nose were more horns about six inches long. These horns looked just like a slingshot.

These camels wandered around North America over five million years ago. Each was as big as a moose. But only the males had the funny horns.

Experts aren't even sure what to call this creature. So far, the most popular name is "The Horned Wonder." —Written by Douglas Colligan

What's That? Have you seen a story in a newspaper or magazine that belongs in the Contact Report? Why not cut it out and send it to us? Be sure to include your name, age, address and the place you found the story. Send it to:

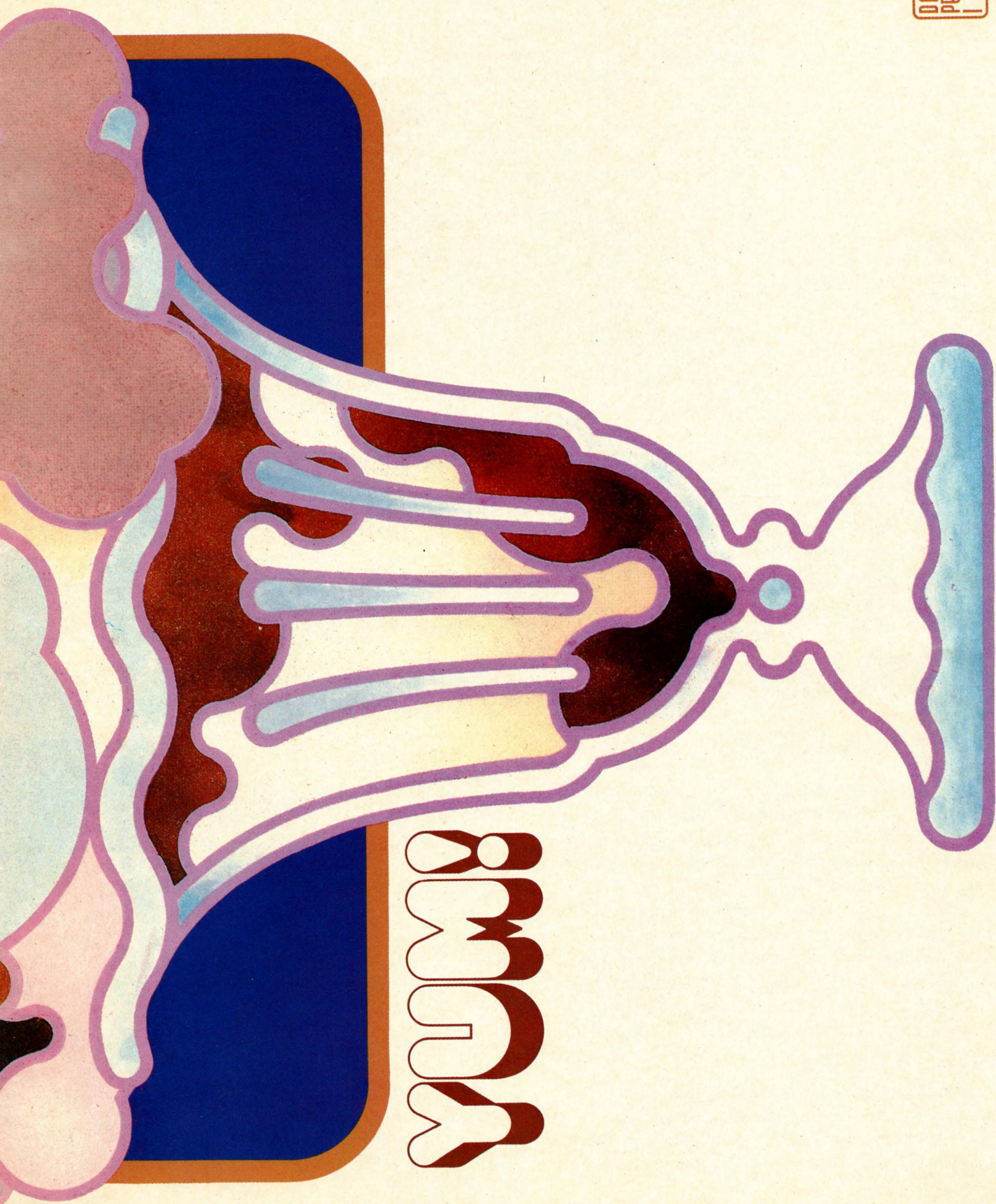
The Contact Report
3-2-1 CONTACT
P.O. Box 599
Ridgefield, NJ 07657



The owner of this skull lived five million years ago.



DANIEL
PELAUIN
1981



Right: Once, thousands of these sea turtles laid their eggs on a beach in Mexico. Now, only a few hundred do. On a spring or summer day, the mother turtles come ashore and lay about 100 eggs each.



SEA TURTLES IN TROUBLE

A PLAN TO SAVE THE RIDLEYS

by Nancy K. Williams

Early one spring morning, several female turtles swim out of the ocean. Slowly they waddle up the beach. Using their rear flappers, they dig holes in the sand. Then they begin laying eggs. These tiny eggs are no larger than ping-pong balls.

At the same time, several scientists appear. Moving quickly, they catch the turtle eggs as soon as they are laid—before they even touch the ground. By the end of the day, nearly 2,000 eggs have been collected and put in boxes. They are then put in a helicopter and flown away.

What's Going On?

What just happened is part of a plan to save a sea turtle known as the *Atlantic ridley*. Each year, the ridleys arrive at the same beach in Mexico to lay their eggs. Thousands of ridley turtles used



Right: In Mexico, turtle eggs are packed in sand for their trip to a safe beach in Texas.

Right and Below Right: As newly hatched turtles head for their first swim, the staff at the island make sure they are safe. Unless the baby turtles are protected, they will be eaten by crabs and birds.

Below: When they are full grown, these ridleys will be two feet long and weigh 100 pounds.



to come. But a few years ago, only 200 arrived. Soon there may be no ridleys left at all.

People are to blame for the ridleys' problems. Thieves called *poachers* raid the ridleys' nests. They steal the turtles' eggs. Many people think eating turtle eggs is a real treat. So poachers make a lot of money selling the eggs. "Poachers have almost wiped out the ridleys," says Dr. Archie Carr, an expert on turtles.

To save the ridleys, scientists came up with a plan. The plan has two parts. First, protect the eggs so that more will hatch. Then, find a new, safer home for the ridleys.

This second part of the plan is not as easy as it sounds. It depends on a wonder of nature called *imprinting*. Imprinting is a way animals learn things very early in life. In the case of the ridleys, the baby turtles learn that this one beach in Mexico is their home.

No one knows exactly how ridleys learn this beach is their home. It might be caused by a chemi-

cal reaction between the turtle eggs and the sand there. Or it could be the smells in the ocean water where the baby turtles take their first swim. But whatever causes imprinting, the result is always the same. Years later, the ridleys grow up. Then they know to return to the same beach where they were born, to lay their eggs.

The Ridleys Move to Texas

To save the turtles, scientists wanted to teach the ridleys to lay their eggs at a beach where they could be taken care of. They carefully studied several beaches. They wanted to find one like the beach in Mexico. They found the perfect spot in Texas. It's called the Padre Island National Seashore.

The 2,000 eggs collected in Mexico were flown to Padre Island. There they would be protected until they hatched. Then, scientists hoped, imprinting would take place. When the time comes for these ridleys to return home, the clues they have will lead to this Texas beach. ➡➡

Right: After a swim at the Texas beach, the baby turtles are rounded up. Now they are ready to be flown to a lab where they will be cared for.



Left: The tank at the lab which held the turtles the first year of the plan is being cleaned. Large tanks like this are no longer used. As the turtles grow, they bite each other. So now each turtle is kept in its own tank.

The Turtles Are Born

After 48 days in Texas, something exciting happened. The eggs began to develop large splits. The cracks got wider. Tiny turtles began poking their way out. Rangers came running to watch them struggle out of their shells. Soon, baby turtles, the size of silver dollars, were scrambling on the sand.

The next step in the plan was a first swim for the little ridleys. "This was done to imprint a memory of the beach at Padre Island," says Robert Whistler, who works at the island. But the first swim is dangerous for young turtles. As newly hatched babies swarm out of the nest and begin a dash for the sea, other animals can have a feast. Unless they are protected, many baby turtles are snatched up and eaten by large crabs and birds. Some ridleys

which make it to the water can be gobbled up by hungry fish waiting along the shore.

Rangers at the Texas island kept the ridleys safe from their natural enemies. They built a small path leading to the water. Once the turtles were in the water, a net was used to keep them from swimming out too far and getting lost.

After their swim, the ridleys were scooped up in containers. Imprinting had taken place. So the work at Padre Island was finished. The turtles were flown to a lab where they could be cared for.

Little Ridleys Get a Head Start

At the lab, the new-born ridleys began a head start program. The people at the lab fed and protected the little ridleys. After a year in the lab, the turtles

were bigger. They could better take care of themselves. They were released off the coast of Florida, where many young ridleys have been seen.

Scientists want to learn more about this mysterious turtle's travels. So before they were let go, the ridleys were marked with numbered tags. That way, the scientists will recognize any ridley turtle they see again.

No one will know if the plan is a success for five to ten years. That is when the first ridleys that were released will be grown up. Scientists hope that, instead of going to Mexico, the adult females will come back to their new safe home in Texas to lay their eggs. If the turtles do return, much will be learned about them and how imprinting works. But most important, the Atlantic ridley will not disappear from the ocean forever.



Above: The rangers at Padre Island tag the young turtles before they are released. A record of all the tagged turtles is kept. That way, scientists will recognize any ridleys they see again.



Left: After they are tagged, the baby ridleys are released in the Gulf of Mexico. Scientists hope the ridleys will return when they are ready to lay their eggs—in about five or ten years.

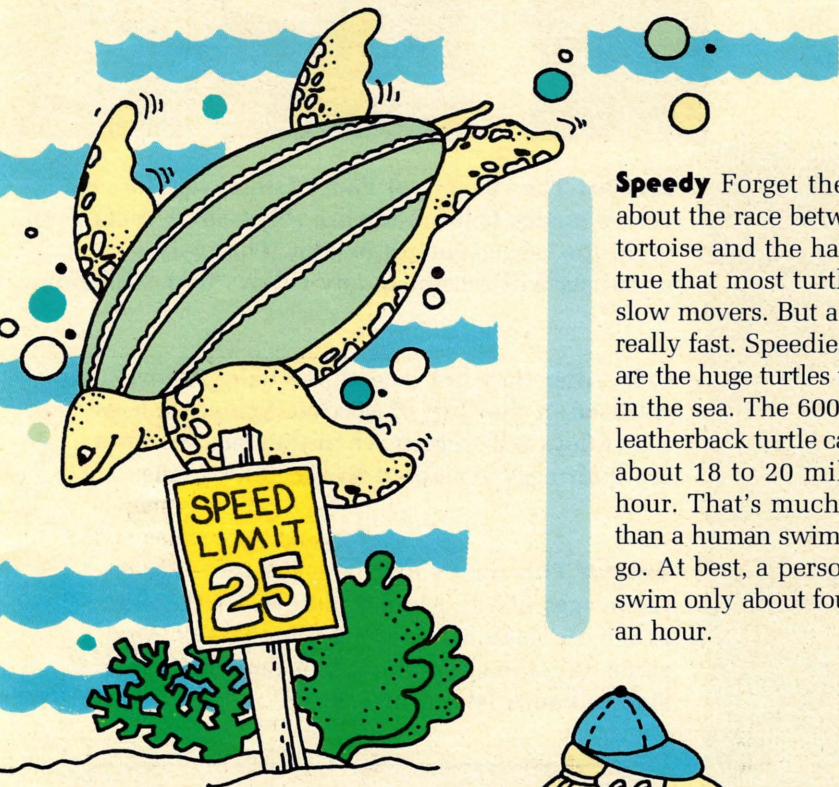
Below: This map shows you the route the turtle eggs travel. Mother ridleys lay the eggs at the Mexican beach of Rancho Nuevo. That same day, the eggs take a half hour helicopter ride to Padre Island in Texas.



List of the Month

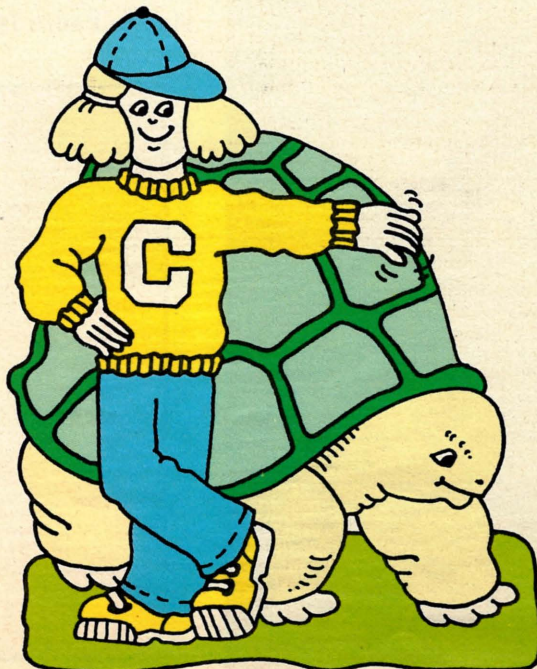
Turtle Tales

Ridley turtles aren't the only turtles in the world. There are at least 240 other kinds. And some of them have surprising hidden talents. For instance....

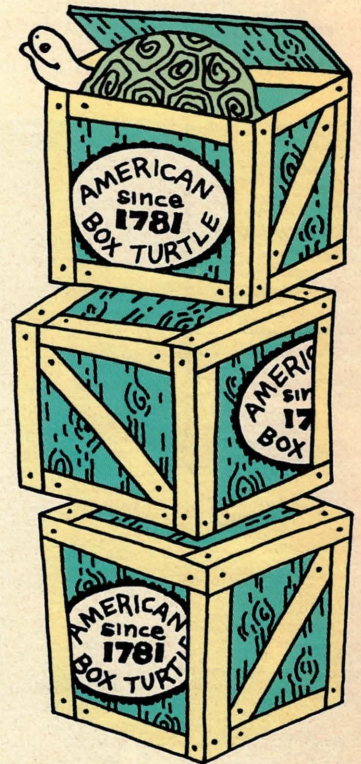


Speedy Forget the story about the race between the tortoise and the hare. It's true that most turtles are slow movers. But a few are really fast. Speediest of all are the huge turtles that live in the sea. The 600-pound leatherback turtle can swim about 18 to 20 miles an hour. That's much faster than a human swimmer can go. At best, a person can swim only about four miles an hour.

Terrific Tortoises Land turtles are called tortoises. Most of them are small. But a few grow almost as big as the giant turtles from the sea. The Galapagos tortoise weighs about 500 pounds and grows to be four feet long. Sound scary? This tortoise would be even more afraid of you. When it spots people, it often hisses. Then it falls to the ground as if it were dead and waits until the people go away.



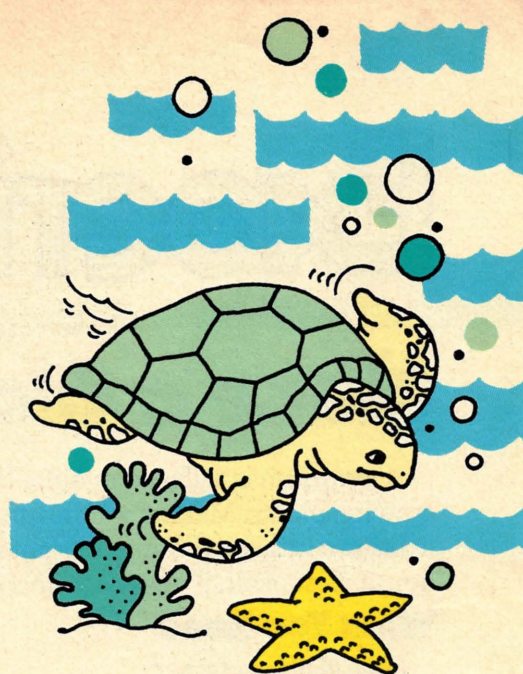
Tasty? You might be surprised to learn that some people actually eat turtles. Long ago, sailors on ships used to catch large turtles to add to their supply of fresh meat. Today, turtles still land in people's cooking pots. They're also used to make—what else?—turtle soup. Like the ridleys, many turtles are becoming very rare. It's against the law to eat these turtles or their eggs.



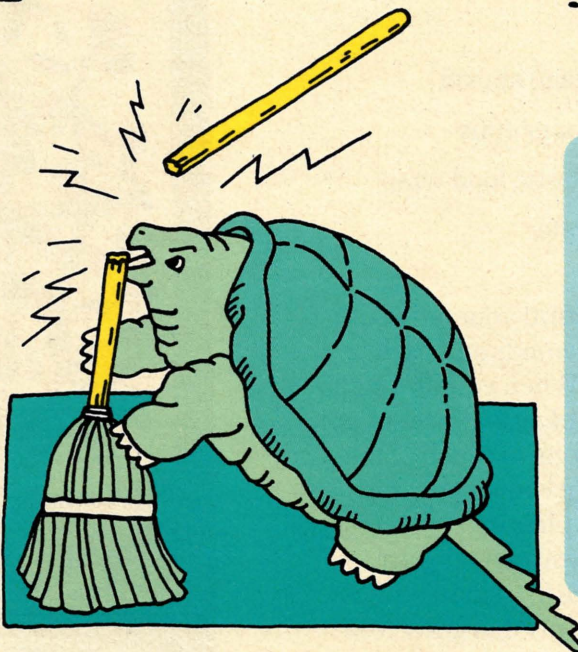
Weird One really weird turtle is the *matamata* of South America. If you saw one lying in a stream, you might think it was a pile of garbage. It has a flat head covered with movable fringes and ear flaps. Matamatas use these odd-looking pieces of skin to lure small fishes into coming close enough to eat. This turtle also has a long neck, a nose like a snorkel and a flat lumpy shell.



Unsinkable Most turtles can't drown. Even though they breathe air with their lungs, they can also stay underwater a long time. That's because they have two different ways to breathe. Like fish, turtles can take oxygen directly into their bodies from the water. So most turtles don't have to come up to the surface for hours. Some even stay underwater for several days.



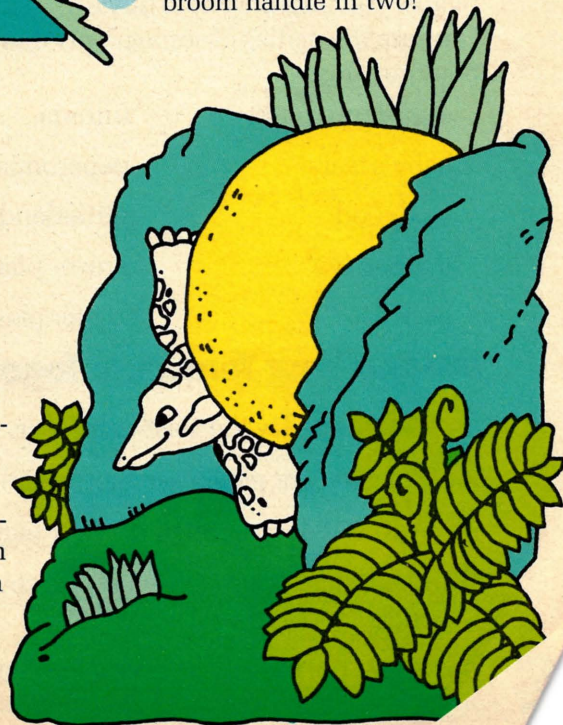
Old Man Turtle People once thought that turtles lived over 200 years. That idea got started because jokers would carve names like "George Washington" on their shells. When other folks saw these turtles, they thought the turtles had been around since Washington's time. Actually, turtles do live longer than most animals. The American box turtle, for example, lives up to 120 years.



Snappers Turtles don't have teeth. But you'd never believe that if one bit you. They do have very sharp ridges in their jaws that work almost as well as teeth for cutting up their food. But the only turtle ever likely to bite you is a snapping turtle. On land, these fierce animals snap at everything that comes near them. Some are so strong that they can even bite a broom handle in two!



Shell-lacking Some turtles don't have a hard shell to protect them. So they find other ways to stay safe. Musk turtles give off a bad smell. That's why they're called "stinkpot." Then there's the softshelled African pancake tortoise. It hides in cracks between rocks. When enemies appear, it takes a deep breath and blows up its body with air. That wedges it safely into its hiding place.



Experiment

Make a Glass Garden

A terrarium is a glass container filled with growing plants. Making a terrarium is a great way to bring a little bit of summer right inside your house. Best of all, it's easy and lots of fun.

What You Need

large glass container or aquarium	small shovel
small plants	paper cups
gravel or tiny pebbles	plastic food wrap
soil	water

Getting Your Plants

Since it's summer, why not find your terrarium plants outdoors? Open fields, woods and backyards are good places to look. When you find some plants you like, make sure it's okay to dig them up!

Dig up the plants. Be sure to get as much of the root as possible. Bring the plants home in paper cups. Keep the roots wet until planting.

If you live in a place where you can't dig up plants, you might want to buy a few small ones. Here are the names of some plants that grow well in terrariums:

aluminum plant	fittonia
baby's tears	peperomia
boxwood	philodendron
English ivy	prayer plant
ferns	spider plant

Putting Your Terrarium Together

1. Wash and dry the glass container.
2. Put gravel or pebbles at the bottom.
3. Add soil deep enough to cover plant roots.
4. Plant each plant deep enough to cover its roots.
5. Water the terrarium. Soil should be damp, not soggy. You won't have to water it often.



But check now and then to see that the soil isn't dry.

6. Decorate the terrarium with colored stones, shells or other things you find outside.
7. Cover the top tightly with plastic wrap.
8. Your terrarium is ready. Put it in a place with lots of light, but not direct sun. Enjoy!

Why It Works

You wouldn't last long in a closed container, but it doesn't harm plants. You need oxygen to breathe. As soon as the air in the container was used up, that would be all for poor you. But plants



don't run out of the carbon dioxide and oxygen they need. They can turn carbon dioxide into oxygen, then turn oxygen back into carbon dioxide. The same air is used again and again.

Water in a terrarium is used over and over, too. The plants take water from the soil, then release it through their leaves as water vapor. Water vapor cools and turns back into water. You can see the drops collect on the glass. The water then falls back into the soil to be used again.

The things that happen in your terrarium happen outdoors all the time. Earth has a limited amount of air and water that must be used again and again. Plants recycle the oxygen in the atmo-

sphere, just as they do in your terrarium. Without plants, people would soon run out of fresh air.

Nature's water cycle is like a terrarium, too. Water evaporates from the ground and goes into the air as water vapor. High in the sky, it cools, turns back into water and falls as rain.

Add a Pet

Large terrariums make good homes for small pets, like turtles, frogs and toads. But like people, these animals need lots of air. If you keep a pet inside, poke some holes in the plastic wrap that covers your terrarium. You will also have to find out what to do to keep your pet healthy—including the right foods to feed it.

Timeline



Sneakers were first used in sports like tennis and croquet.

The History of Sneakers

by Wendy Williams

Past

The first sneaker-type shoes were made 250 years ago. Indians in Brazil used to dip their feet in the sap of a rubber tree. When they stood near a fire, this sap hardened. These shoes were called “gumboats.” There was just one problem. In a few days the rubber crumbled and fell off their feet.

It took more than 100 years before anyone solved the problem of the crumbling gumboats. In 1839, American inventor Charles Goodyear came into the picture. Goodyear was trying to find out why rubber melted in hot

weather and cracked in cold weather. During an experiment he accidentally made an important discovery. If you heated rubber and mixed it with certain chemicals, it became hard on the outside and soft on the inside. Better yet, it didn’t melt or crumble. Goodyear’s way of treating rubber made sneakers possible.

The first sneakers appeared in 1868. Back then they had a different name. People wore them to play a game called “croquet” (crow-KAY). So the shoes were called “croquet sandals.” People soon discovered these rubber shoes were great for other occasions. They played tennis in them and wore them to the beach. Before long a new name for these rubber shoes snuck up—sneakers! And that’s how they have been known ever since.

Present

Today, almost everyone spends at least some time in a pair of sneakers. Think of a sport. Chances are there are sneakers made especially for it. There are basketball sneakers, tennis sneakers and jogging shoes. There are also sneakers for wrestling, boating, weightlifting and skateboarding. The only sport there are no sneakers for is tiddlywinks. And we're not even sure there aren't!

Sneakers used to be made by hand. People would cut out all the pieces. Then they sewed and glued these pieces together. That took a long time.

Now sneakers are made mostly by machines. People still do some of the lacing and gluing. Since machines do

most of the work, sneakers can be churned out faster than ever before. And they are. Every year, Americans buy 220 million pairs of sneakers!

Sneakers really are made to fit different sports. Joggers spend their whole day running straight ahead. So their sneakers are built for moving forward. Tennis shoes have smooth bottoms so they will not chew up the court. And basketball sneakers are great for quick stops and turns.

But just because you play tennis and basketball, and jog doesn't mean you need a closet full of sneakers. An all-around kid needs a sneaker to match. So pick a well-made, comfortable pair and have fun!

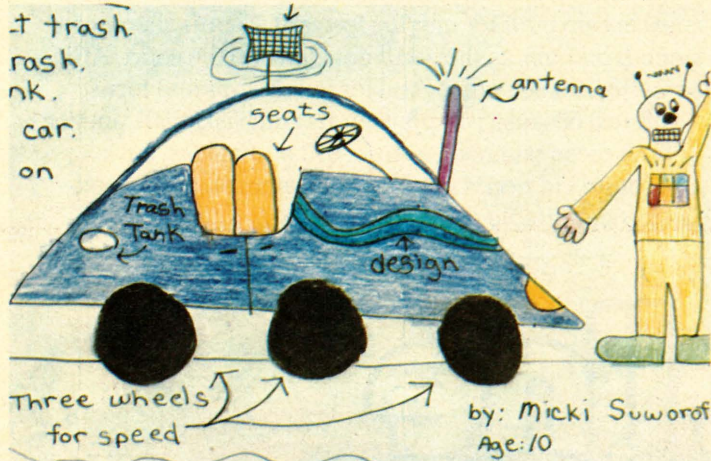
Timeline



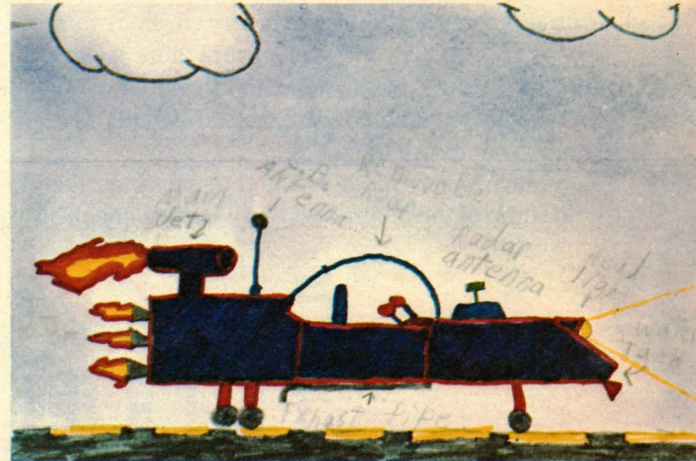
Today, sneakers come in many different styles.

MAIL

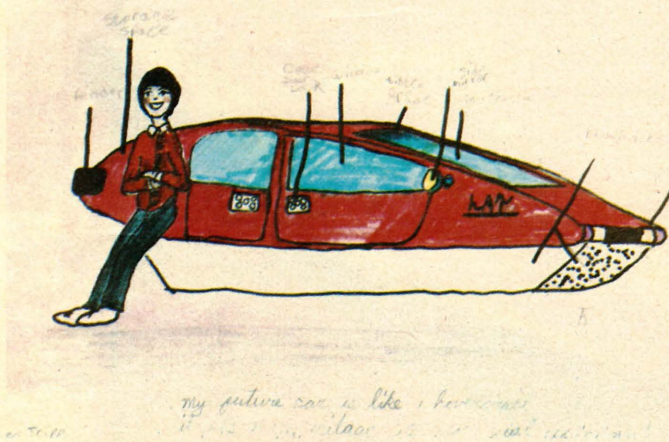
Future Cars Thanks for sending us your wild and wonderful future cars. Here are a few of our favorites.



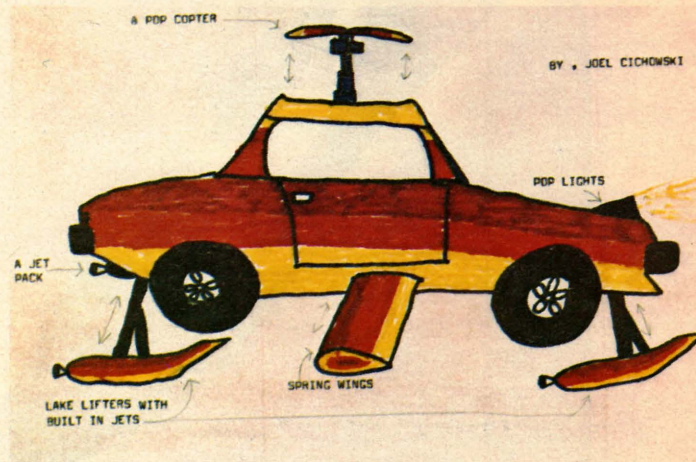
Micki Suworoff, W. Allis, WI.
Micki's future car runs on trash.



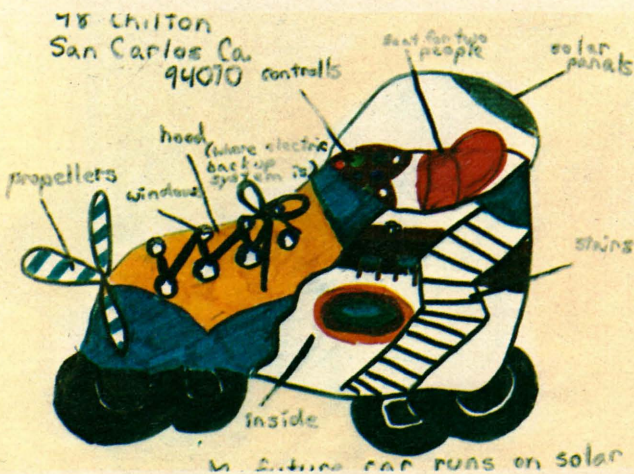
Scott Maynor, Sheffield Lake, OH.
This car runs on water and has ultra-violet ray lights.



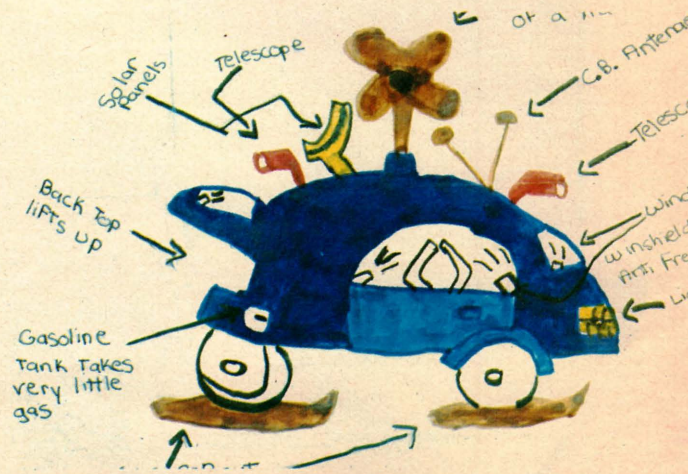
Loren Tripp, Joffrey Ctr., NH.
Loren's car has a "brush-like" base instead of wheels.



Joel Cichowski, Seattle, WA.
Joel's car is part helicopter, part boat and part plane.



Katie Duchanan, San Carlos, CA.
The "roller skate" car runs on solar or wind energy.



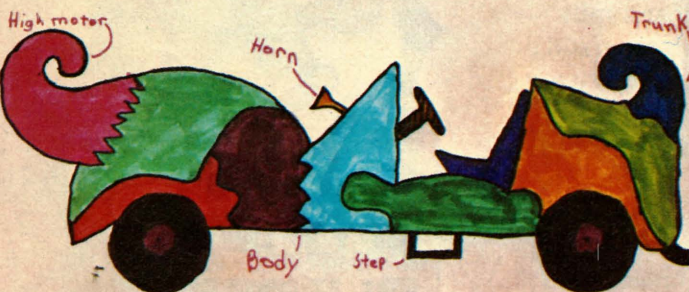
Jessica Paluch, Chicago, IL.
This tiny car has telescopes and skis for when it snows.



Chris Curtis 10th Mx Future car runs on .21.

Chris Curtis, Olympia, WA.

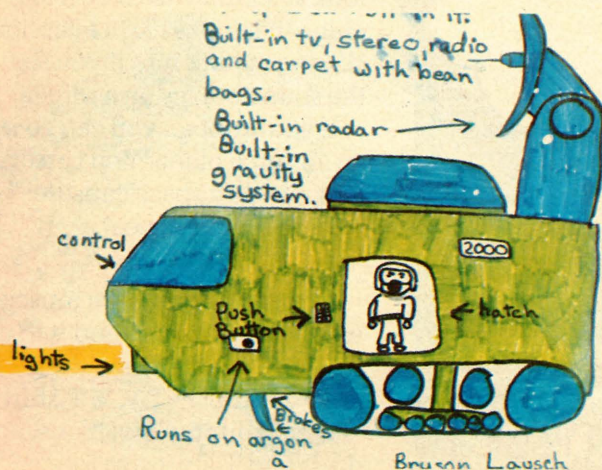
Chris's car of the future runs on fire.



Janelle Jackson

Janelle Jackson, San Antonio, TX.

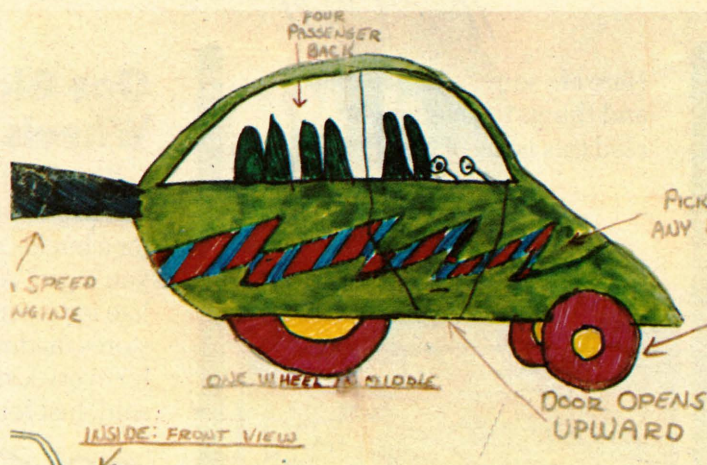
Janelle's fun future car is called the "German Sweet."



Bryson Lausch

Bryson Lausch, Topeka, KS.

A liquid called "argon" runs Bryson's tank-like car.



Jennifer Kadlitz, Warren, MI.

Jennifer's car has three wheels and can switch drivers around.

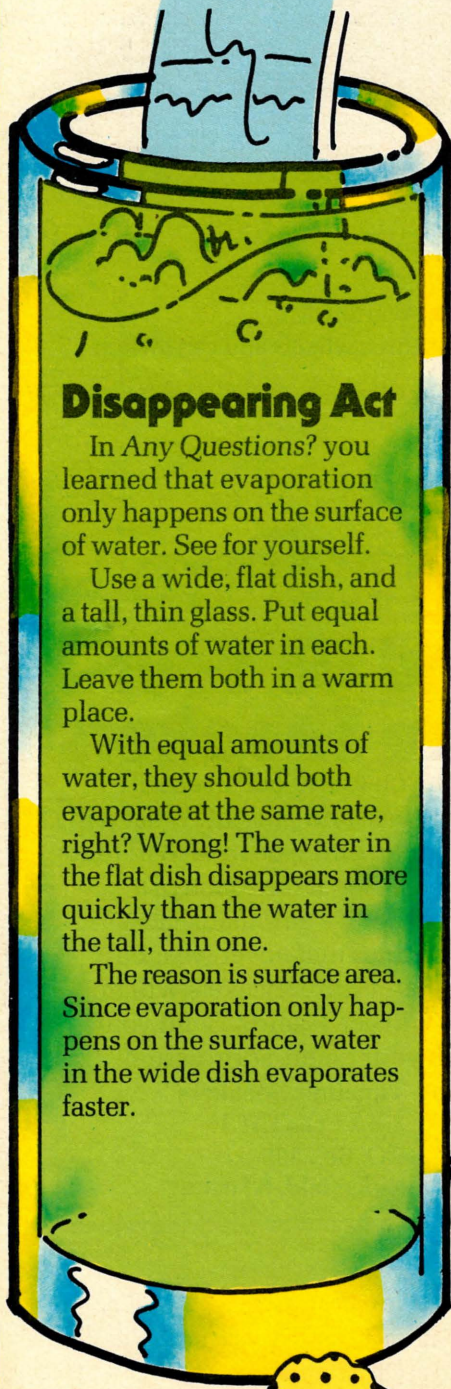
Timeline

Send Us Your Future Sneakers

This month you found out all about sneakers of the past and present. What will the sneakers of the future be like? Will they turn into roller skates at the touch of a button? Will they have automatic laces? Will they have soles that never wear out? Tell us what your future sneakers will do. Our favorites will get T-shirts. Send your drawing, with your name, address and T-shirt size to :

Timeline: Sneakers
3-2-1 CONTACT
P.O. Box 599
Ridgefield, NJ 07657

Here are some books to read and things to do after you read this issue of CONTACT.



Disappearing Act

In *Any Questions?* you learned that evaporation only happens on the surface of water. See for yourself.

Use a wide, flat dish, and a tall, thin glass. Put equal amounts of water in each. Leave them both in a warm place.

With equal amounts of water, they should both evaporate at the same rate, right? Wrong! The water in the flat dish disappears more quickly than the water in the tall, thin one.

The reason is surface area. Since evaporation only happens on the surface, water in the wide dish evaporates faster.

One Glob on Wheels!

If you walked into an ice cream store years ago and asked for a bucket of mud, know what you'd get? A big dish of chocolate ice cream! Workers in these stores made up special words for every kind of ice cream they sold. Just for fun, here are a few:

black bottom	all chocolate sundae
chicago	pineapple sundae
glob	a plain sundae
house boat	banana split
jerk	ice cream soda
mud	chocolate ice cream
mystery	chocolate and vanilla sundae
on wheels	to go
pink stick	strawberry ice cream cone
spla	whipped cream
suds	root beer
white cow	vanilla milk shake

Talking Machines

This review was sent in by Cory Herndon, Kelso, WA.

The Oregon Museum of Science and Industry (OMSI) is in Portland. It has a planetarium.

I think the best part is a huge room with lots of experiments and games. There's a talking machine where you push sound instead of letters. It says the word you punched in. You can



look at sound waves on a machine that looks like a telephone. When you talk into it you see the sound waves on a screen.

If you want to, you can go into an air force plane. You can even look inside a space capsule!

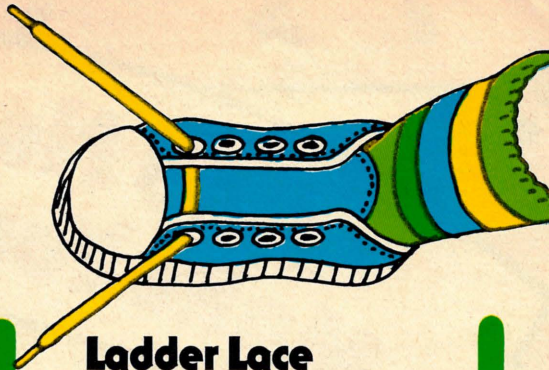
OMSI is really neat.

Next time you go to a museum write a review and send it to us. If we use your review, we'll send you a CONTACT T-shirt.

Send your review, name, address and T-shirt size to:

Reviews and Previews: Museum
3-2-1 CONTACT
P.O. Box 599
Ridgefield, NJ 07657

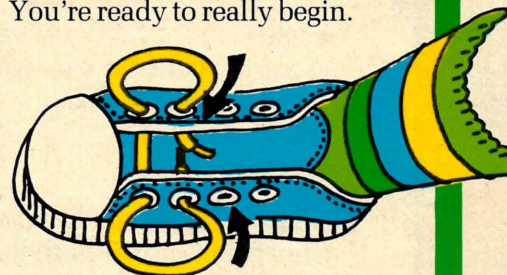
Previews



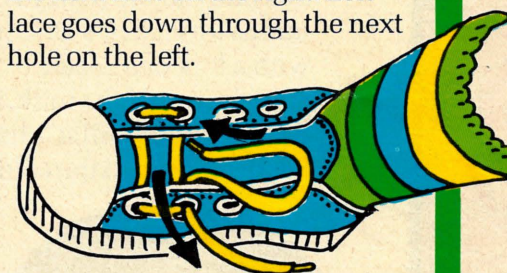
Ladder Lace

Try this neat way to tie your sneaks:

Stick one end of your lace down through one of the bottom shoelace holes. Bring it up through the opposite hole. Pull the ends till they are even. You're ready to really begin.



1. Right lace goes down through the next hole on the right. Left lace goes down through the next hole on the left.



2. Lace on right comes straight across and up through the left hole opposite it. Lace on left



comes straight across and up through the right hole opposite it. It's okay that the laces go through the same hole twice. Repeat these two steps with the other holes.

When you run out of holes, tie your sneakers. (They should look like the one you see in the picture.) Congratulations! Now go outside and play.

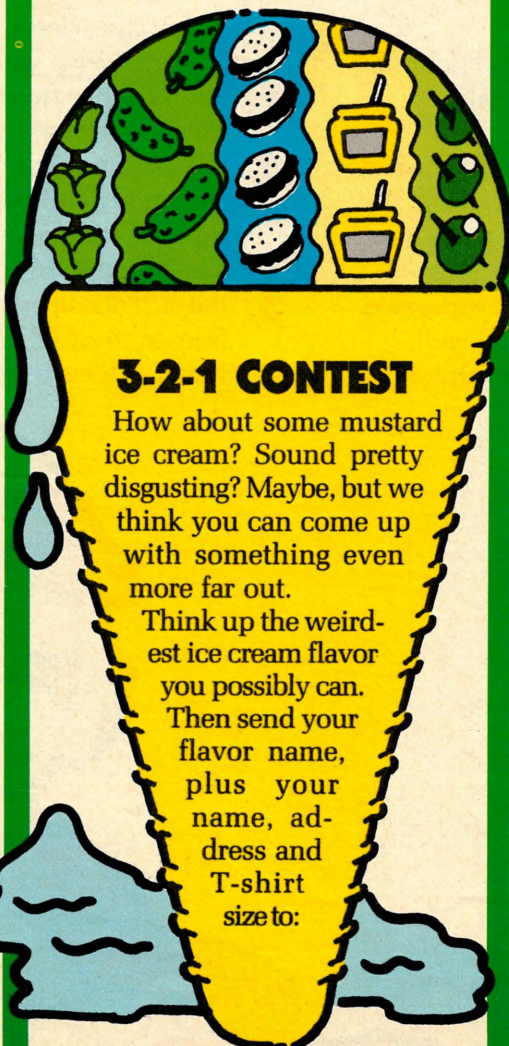
Turtles and Tortoises

You read about turtles on pages 22 and 26. Would you like to know more about these strange creatures? Here are some books to look for at a library or bookstore:

Loggerhead Turtle The loggerhead is a giant sea turtle that can really take care of itself. It has even been known to attack the boats of people trying to catch it. Jack Denton Scott will tell you about that and much more in this G. P. Putnam's Sons book.

Hatchlings: The Lives of Baby Turtles One hundred baby turtles hatch from eggs on a beach. Some are eaten right away by birds or crabs. Others are caught in the water by sharks or fishermen. Maybe only one of them will live to become an adult. John Waters describes the baby turtles' struggle to survive in this Walker and Company book.

The Durable Desert Tortoise Not all turtles live in water. In this book, Colleen Stanley Bare will tell you about one that spends its life in hot, dry places. Desert tortoises face many dangers, but these tough animals have learned to live in a harsh climate. Find out how they do it in this book published by Dodd, Mead and Company.



3-2-1 CONTEST

How about some mustard ice cream? Sound pretty disgusting? Maybe, but we think you can come up with something even more far out.

Think up the weirdest ice cream flavor you possibly can.

Then send your flavor name, plus your name, address and T-shirt size to:

3-2-1 Contest: Ice Cream
P.O. Box 599
Ridgefield, NJ 07657
Our five favorites will get T-shirts.

And Now For Dessert... Make Your Own Ice Cream

Don't just read about ice cream.
Make some for yourself! Try this
recipe for vanilla ice cream.

What You Need

- 1 tablespoon of unflavored gelatin
- $\frac{1}{4}$ cup of hot tap water $\frac{1}{2}$ cup of honey
- 1 cup of evaporated milk 2 cups of milk
- 3 teaspoons of vanilla extract
- $\frac{1}{2}$ cup of shelled nuts—walnuts, almonds
or pecans (If you like.)
- a big bowl or pan

What You Do

1. Put the gelatin in the bowl and pour the hot water in. Stir until the gelatin is totally melted.
2. Add just one cup of milk and the honey. Stir until all the honey is blended in. If lumps form, that's O.K. Just beat it hard with a fork or a beater.
3. Add the rest of the milk, the evaporated milk and the vanilla. Mix it all well.
4. Set the freezer to the coldest point. Put

the bowl in the freezer.

5. When the mixture is partially frozen, in an hour or two, take it out of the freezer.
6. Beat with a mixer or eggbeater, until fluffy.
7. Add the nuts. Stir them in gently.
8. Put the mixture back in the freezer. In a couple of hours, it will be ready.

Tips

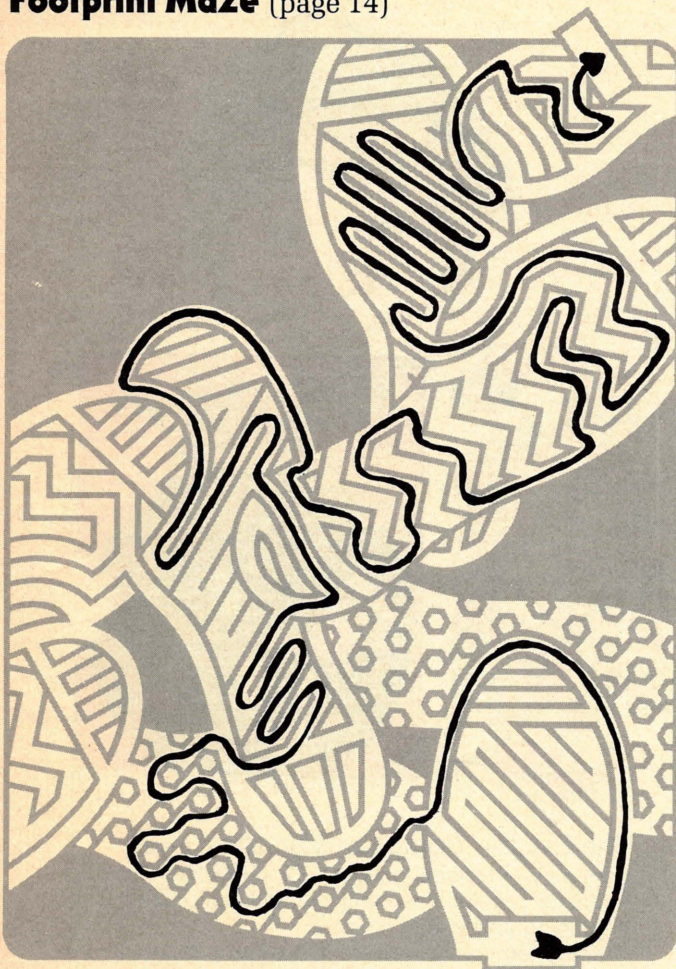
If the mixture doesn't get fluffy when you beat it, here's what you can do.

1. Put it back in the freezer for a half hour. Then continue with step number six.
2. If it's still not fluffy, melt a teaspoon of gelatin in a little hot water. Blend it into the mix. Put the mixture in the freezer for a half hour. Continue with step six.
3. If it still doesn't fluff up, put it in the freezer anyway. When it becomes frozen it will still taste good.



Answer

Footprint Maze (page 14)



Credits

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Thank You!

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Next Month!

Here's a sample of what you'll find in the next issue of 3-2-1 CONTACT:

Bears

Meet a family of black bears and see how they live in the woods.

Are You an Energy Hog?

Play this new CONTACT game and find out.

Bloodhound Gang

CONTACT's kid detectives are back in an exciting adventure.

Caves!

Take a trip to a strange underground world.

Plus Factoids, Earth Works and Much More!

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For Ages 2-6



Sesame Street Magazine — Big Bird and his delightful friends will bring dozens of playful surprises, ten terrific times a year. (It's the entertaining education that Sesame Street does best!) Puzzles, cut-outs, games, A-B-C's, 1-2-3's...there's all the magic of the TV super-series in every colorful issue.

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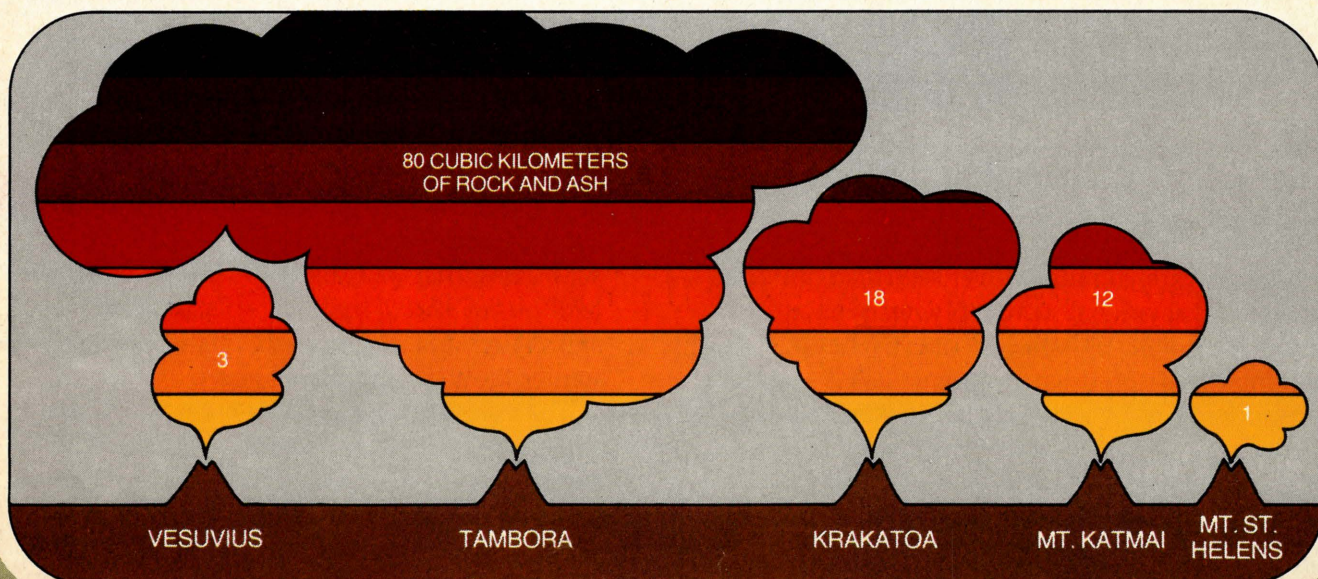
Earthfacts: Volcanoes

Each month CONTACT will bring you another Earth Works. Save these pages in a notebook. Soon you will have your own guide to the wonders of the planet earth.

EarthWorks

- The earth's crust is made of giant pieces of rock called *plates*. They fit together like pieces of a puzzle. Volcanoes are located where two plates meet. As they press together, one plate is forced under the other. Pressure and heat, deep underground, melt the edge of the plate. This produces hot, liquid rock called *magma*. A volcanic eruption occurs when magma forces its way up through the earth's surface.
- Most volcanoes are located around the edges of the Pacific Ocean. This circle of volcanoes is known as the "Ring of Fire." All volcanoes in the U.S., except Hawaii, are part of the ring. They are found in Alaska, Washington, Oregon and California.
- Not all volcanoes explode violently. But if gas from the hot magma can't escape, it builds up pressure inside the volcano. When the pressure is too great, the volcano blows its top.
- The largest explosion ever heard on earth was the eruption of the volcano Krakatoa in 1883. The explosion was heard 3,000 miles away.
- The 1902 eruption of Mt. Pelée on the island of Martinique was one of the worst natural disasters ever. An explosion ripped out part of the side of the volcano. A cloud of fiery ash and gas rolled down the mountain at about 100 miles per hour. It swept over the city of St. Pierre. Thirty thousand people died.
- There's no way to predict exactly when a volcano will erupt. But, luckily, many volcanoes show signs before a big blow-up. The ground swells up and becomes warm. Ash and steam may spout from the volcano. When these things begin, scientists can warn people to leave the danger area.
- Not all volcanoes are on land. Some islands are really volcanoes that stick up out of the ocean. The islands of Hawaii are all the tops of ocean volcanoes.
- The world's largest volcano is Hawaii's Mauna Loa. It is 60 miles long and 30 miles wide. It's 30,000 feet high—if you count the part that's underwater. Mauna Loa is so tall that if it was a building, it would have 2,500 floors!
- Volcanoes also have some good side effects. Some of the best soil in the world is made from the material that spills out of volcanoes.

Below: This drawing shows you how Mount St. Helens compares to other famous eruptions. The size of the cloud shows you how much rock and ash was blown into the air.





Mount St. Helens blasted millions of tons of ash into the air.

Focus on Volcanoes

Chances are you have never seen an exploding volcano. But you have probably heard about one—Mount St. Helens. For 123 years, this mountain sat quietly in Oregon's Cascade Range.

Suddenly, in March 1980, the sleeping volcano woke up. There were earthquakes near it. Spouts of steam and ash appeared. Scientists watched and waited for something really big to happen.

Finally, on May 18, 1980, the volcano blew up

with a roar that was heard 200 miles away. Millions of tons of rock were blasted into the sky. A fiery hot cloud of ash, pushed by high winds, blew down whole forests.

The volcano has now quieted down. Will it stay that way? No one is certain. But the last time Mount St. Helens exploded, it kept erupting on and off for 20 years. So stay tuned. You probably haven't heard the last of Mount St. Helens.

(continued on page 39)